

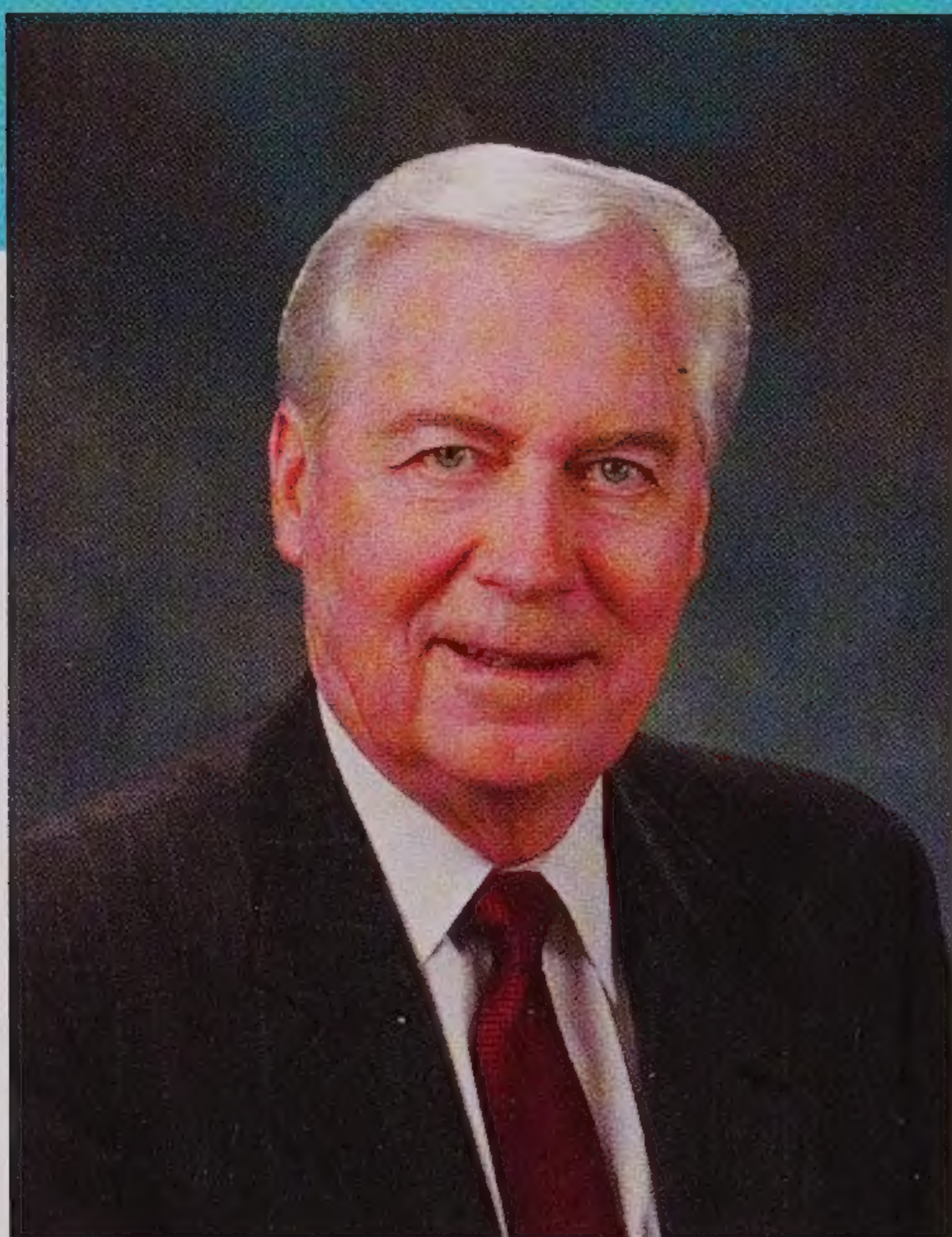


Hands-On Science, Technology, Engineering, and Math
2008



education

NORTH AMERICA



Connected Directly to the Mind.

How can a LEGO® brick be so powerful? Because it's not just a LEGO brick, that's why. In your students' minds, it's an integral part of a busy large-city bridge, a key component in a conveyor belt system at an automobile factory, or the difference between a functioning and non-functioning lunar robot.

The connections our students make between what they learn in school and what they encounter in the real world are perhaps the most important connections they'll make in life. The connections shape who they'll be, what they'll study in college or the workforce, and how they'll apply their knowledge to help improve themselves and their communities.

Whether you're a veteran LEGO Education teacher, or you're integrating LEGO Education products and teaching materials into your classroom for the first time, you'll find that you and your students will be drawn to them again and again, as their relevance extends beyond the classroom.

When your students join two LEGO bricks in their creations, they are not just connecting two pieces of plastic – they're connecting to their future.



Dear Friends and Fellow Educators,

Welcome to the 2008 edition of our LEGO® Education catalog. Throughout the following pages, you will find a wide range of educational products and supplies specifically designed to engage your students with learning that will last a lifetime.

Whether your students are just beginning or approaching graduation, we proudly offer a wide range of quality products to assist with your teaching needs.

Among the many new items available this year are several sensors, books, and add-on packs relating to the successful LEGO MINDSTORMS robotics program and curriculum. *Robot C* software and curriculum offers an alternative programming environment for your LEGO robots, while the *Vernier Sensor Adaptor for NXT* greatly increases a set's flexibility.

For young learners, we have enhanced our *Early Simple Machines Set* and added a new *Tech Machines Set*, both of which use the theme of travel to explore the world of machines. An all-inclusive *Numbers and Mosaics Set* is also introduced with a *Letters Set* add-on, allowing children to create countless patterns while learning all about numbers, shapes, colors, letters, sequences, and symmetry.

As you browse our catalog and discover the many ways we can assist you, don't hesitate to call us or your area sales representative. A complete listing of sales team members, including their toll-free numbers and e-mail addresses, is provided on pages 104-105.

The opportunity for you to use LEGO Education products to teach your students is only a few pages away. We welcome the opportunity to help you create LEGO-smart students!

Sincerely,

Harvey Dean
President, CEO

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Robotics



It's really easy to get started! There are three main components to any LEGO® Education robotics program:

Building Sets

We have the LEGO® MINDSTORMS® *Education Base Set* for the *NXT* and two main sets to choose from for the *RCX*. The building sets supply all of the pieces your students need to create fully functioning robots.

Software

LEGO® MINDSTORMS® *Education Software* for the *NXT* and *ROBOLAB™* for the *RCX* are both built on the *LabVIEW™* engine from National Instruments and are icon based so your students can learn to program in a flash.

Curriculum

We offer a variety of curriculum packs from Carnegie Mellon University designed specifically for the *NXT* system, giving you more than 18 weeks of activities. We also have themed activity packs, a nine-week robotics curriculum, and camps for the *RCX*.

How does it work?

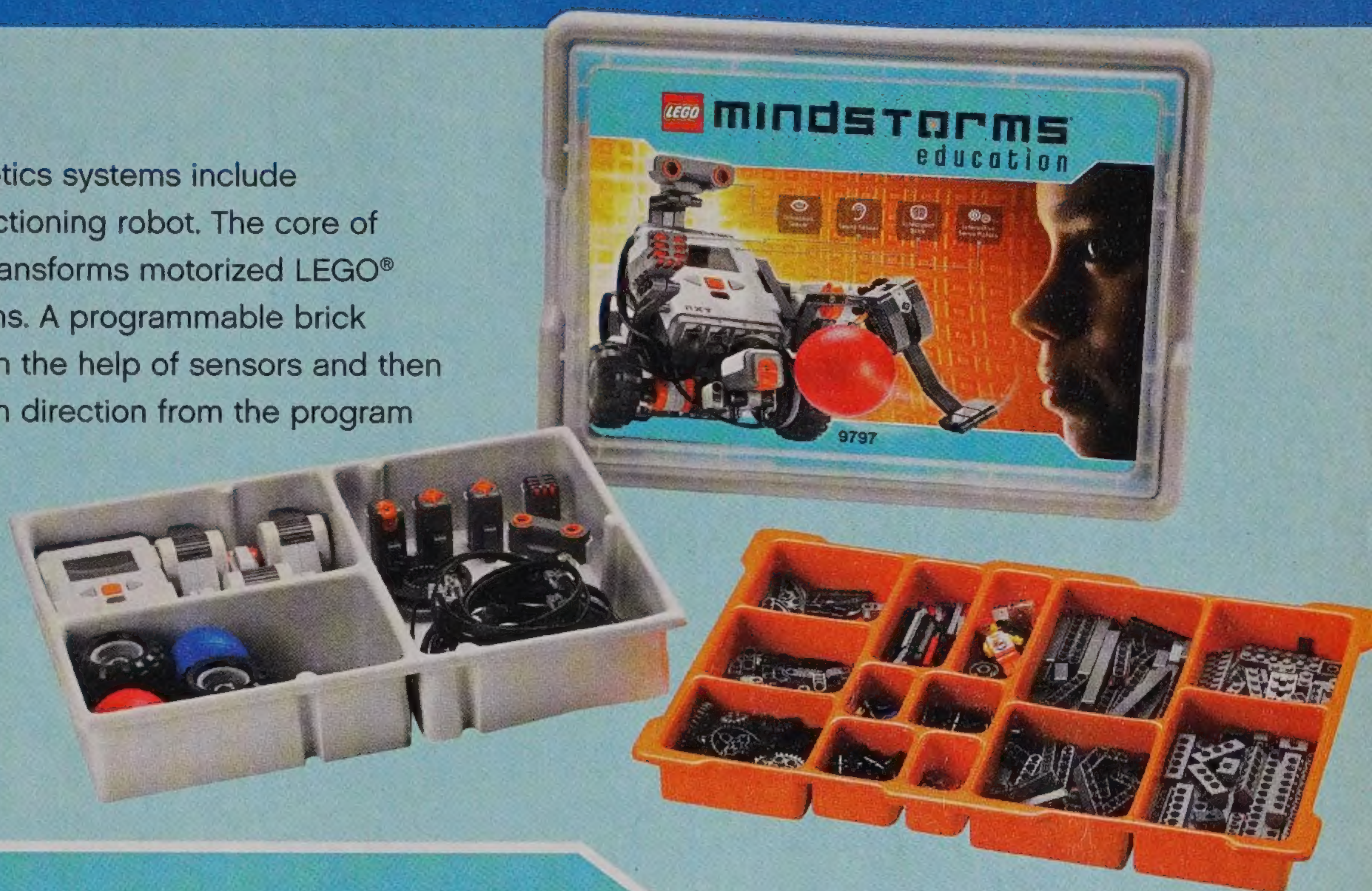
LEGO® MINDSTORMS® *Education* sets, software, and activities are powerful tools that convert your classroom into a hands-on, minds-on robotics laboratory. Your students will model real-life mechanisms and use creativity, logic, and problem-solving skills to meet challenges with today's technologies all while learning necessary math, science, technology, and engineering concepts.

Here's what your students will do:

With direction from the chosen curriculum, students will begin to solve problems, construct a robot to perform specific duties, and write a program for the robot. After downloading the program from the computer to the robot, your students will test their robot and observe if their solution to the problem was successful. After testing, they then have the opportunity to modify the program or reconstruct the robot to meet their needs.

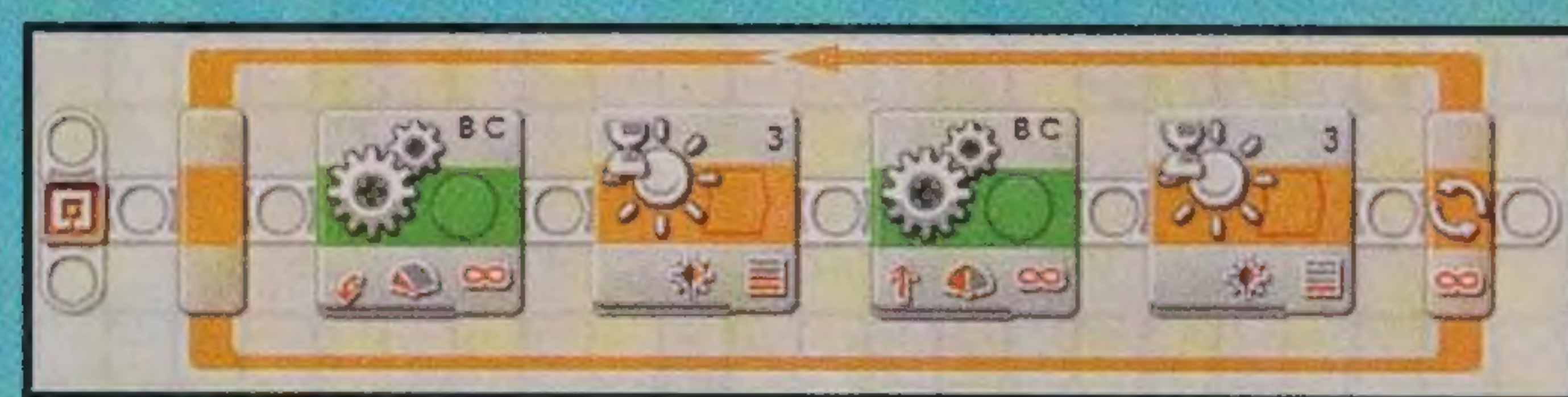
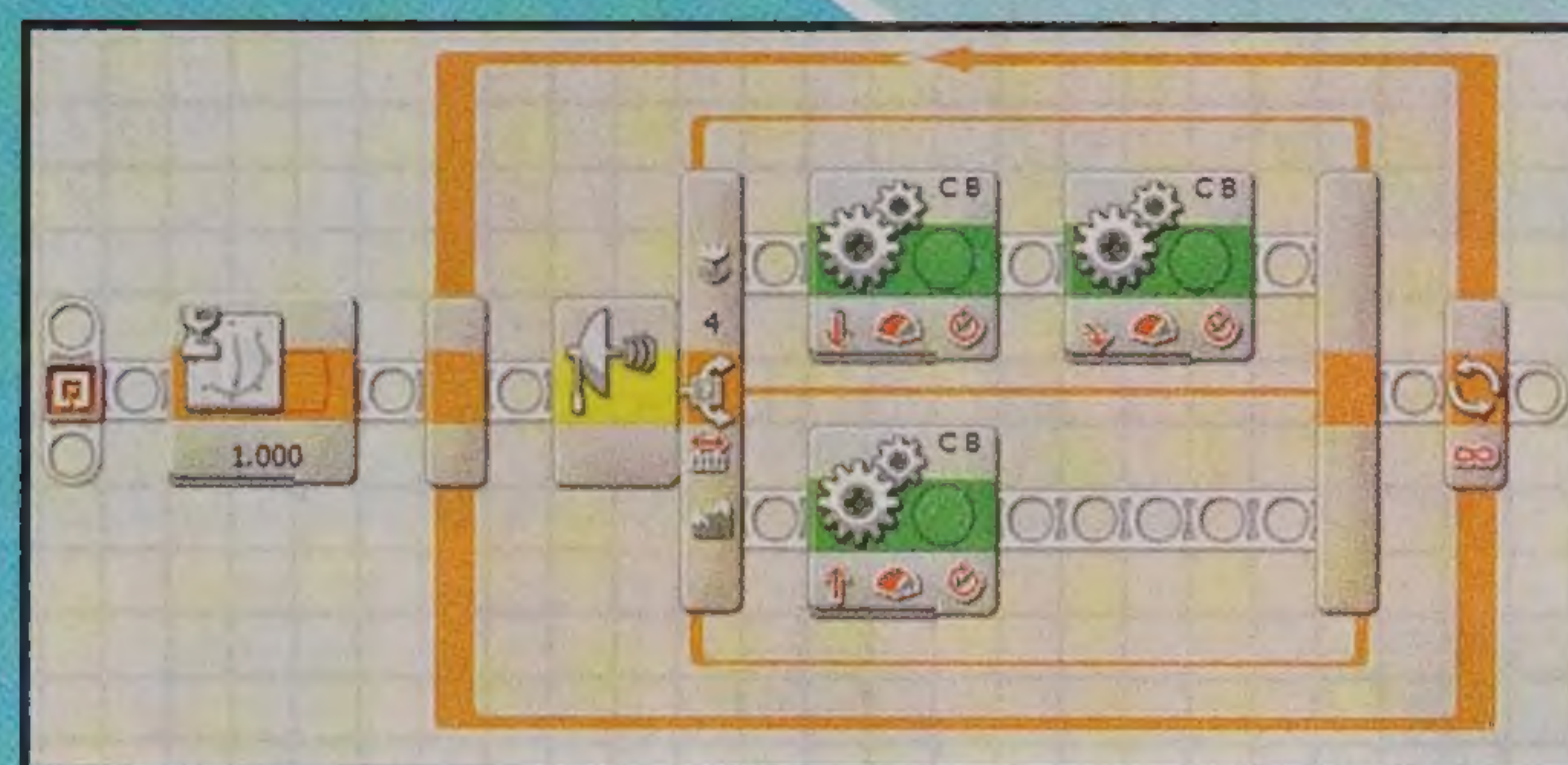
Building Sets

The Building Sets provided for both robotics systems include everything your students need to build a functioning robot. The core of each set is the programmable brick, which transforms motorized LEGO® creations into robots and controls their actions. A programmable brick gathers information from its surroundings with the help of sensors and then processes and acts upon the information with direction from the program written by your students. Each of the building sets includes sensors, motors, and hundreds of other specialty elements that help complete your students' creations.



Software

LEGO® MINDSTORMS® Education Software for the NXT and ROBOLAB® for the RCX are both built on the LabVIEW™ engine from National Instruments. LEGO MINDSTORMS Education Software for the NXT features a graphic programming environment, built-in tutorials, and two programming pallets. ROBOLAB™ software for the RCX includes an icon-based, diagram-building environment, and Training Missions.



Curriculum

LEGO® Education provides a variety of curriculum and activity options for your classroom. For ages 8 and up, LEGO Education robotics activities will soon become an integral part of your science, technology, engineering, and math curriculum.

Many of the activity packs provide a motivating hands-on supplement to your existing curriculum, and others provide nine to 18 weeks of activities that integrate essential math and physical science concepts. Most of the packs include tips, teacher's notes, tutorials, building instructions, worksheets, and assessments that provide sound structure to the lessons and create a framework that's exciting and relevant to your students.

We also work to partner with leading education entities to bring the best curriculum to your classrooms. Most notably, we offer multimedia curriculum resources from the Robotics Institute at Carnegie Mellon University.





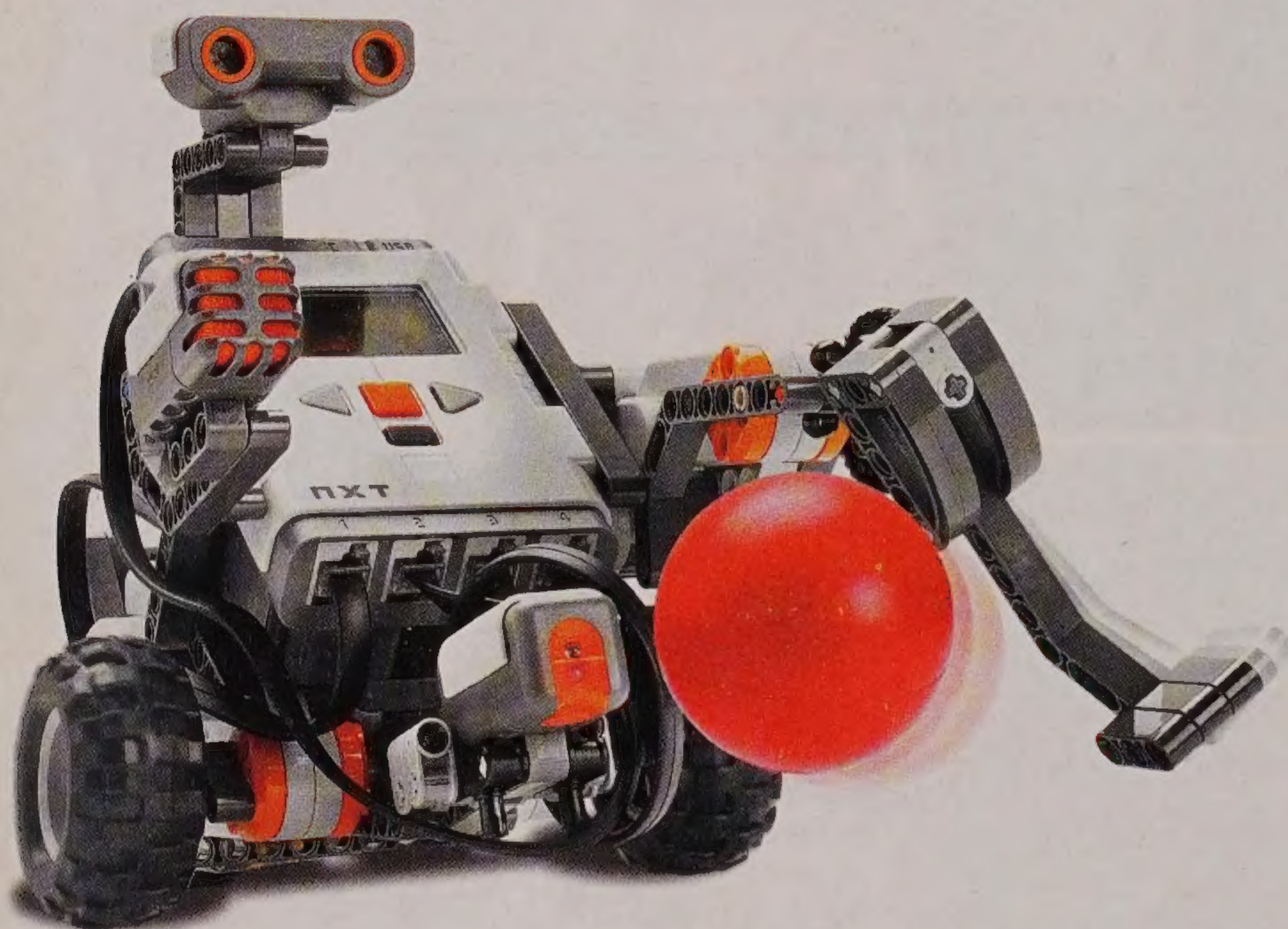
LEGO® MINDSTORMS® EDUCATION BASE SET

The latest generation of LEGO® Education robotics is all here in this set! This essential core set serves as the base for endless *NXT* robotic creations. The set includes 431 elements, featuring:

- *NXT Intelligent Brick*
- Rechargeable lithium battery and charger
- 3 servo motors
- 1 each: light sensor, sound sensor, ultrasonic sensor
- 2 touch sensors
- 3 rotation sensors built into the motors
- 3 converter cables (for using existing RCX sensors and motors with the *NXT Brick*)
- 7 connector cables (one .2M, two .5M, four .35M)
- 3 lamps
- USB cable
- Hundreds of Technic building elements
- Plastic storage bin with sorting trays

LEGO MINDSTORMS Education Software not included.

Z979797—\$260



**SOFTWARE
SOLD SEPARATELY!**



LEGO® MINDSTORMS® EDUCATION SYSTEM REQUIREMENTS

Microsoft Windows:

- Windows XP operating system
- Pentium processor, 800 MHz (1.5 GHz or better recommended)
- 256 MB RAM minimum (512 MB recommended)
- Up to 300 MB of available hard disk space
- XGA display (1024 x 768)
- One available USB port
- Compatible Bluetooth adapter (optional)

Apple Macintosh:

- Apple Mac OS X v. 10.3.9 or 10.4
- PowerPC G3, G4, G5 processor, 600 MHz minimum (1.3 GHz or better recommended)
- 256 MB RAM minimum (512 MB recommended)
- Up to 300 MB of available hard disk space
- XGA display (1024 x 768)
- One available USB port
- Compatible Bluetooth adapter (optional)



Powered by



LEGO® MINDSTORMS® EDUCATION SOFTWARE v1.1

This software, like the beloved ROBOLAB™, is built on the LabVIEW™ engine from National Instruments and works with the NXT Brick. It's icon based, so students will be programming in a snap. The software features two programming pallets, easy and advanced. Also featured is Robot Educator, a series of 39 animated tutorials to help students (and teachers!) learn how to effectively build and program a fully functioning robot. Robot Educator can be used as a teaching tool and is indexed and searchable. The software is Mac OS X and Windows XP compatible.

Z900077—\$69

LEGO® MINDSTORMS® EDUCATION SOFTWARE v1.1 AND SITE LICENSE

The site license allows for the installation of the software on all of the computers at a single school or institution.

Z991280—\$295

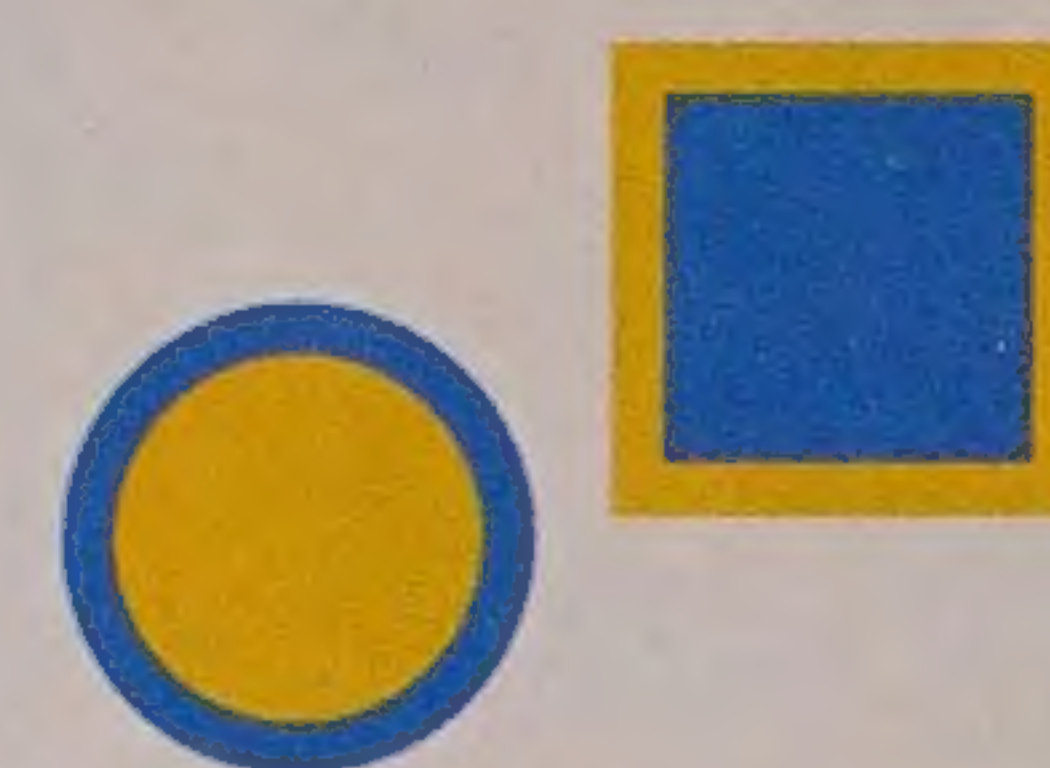
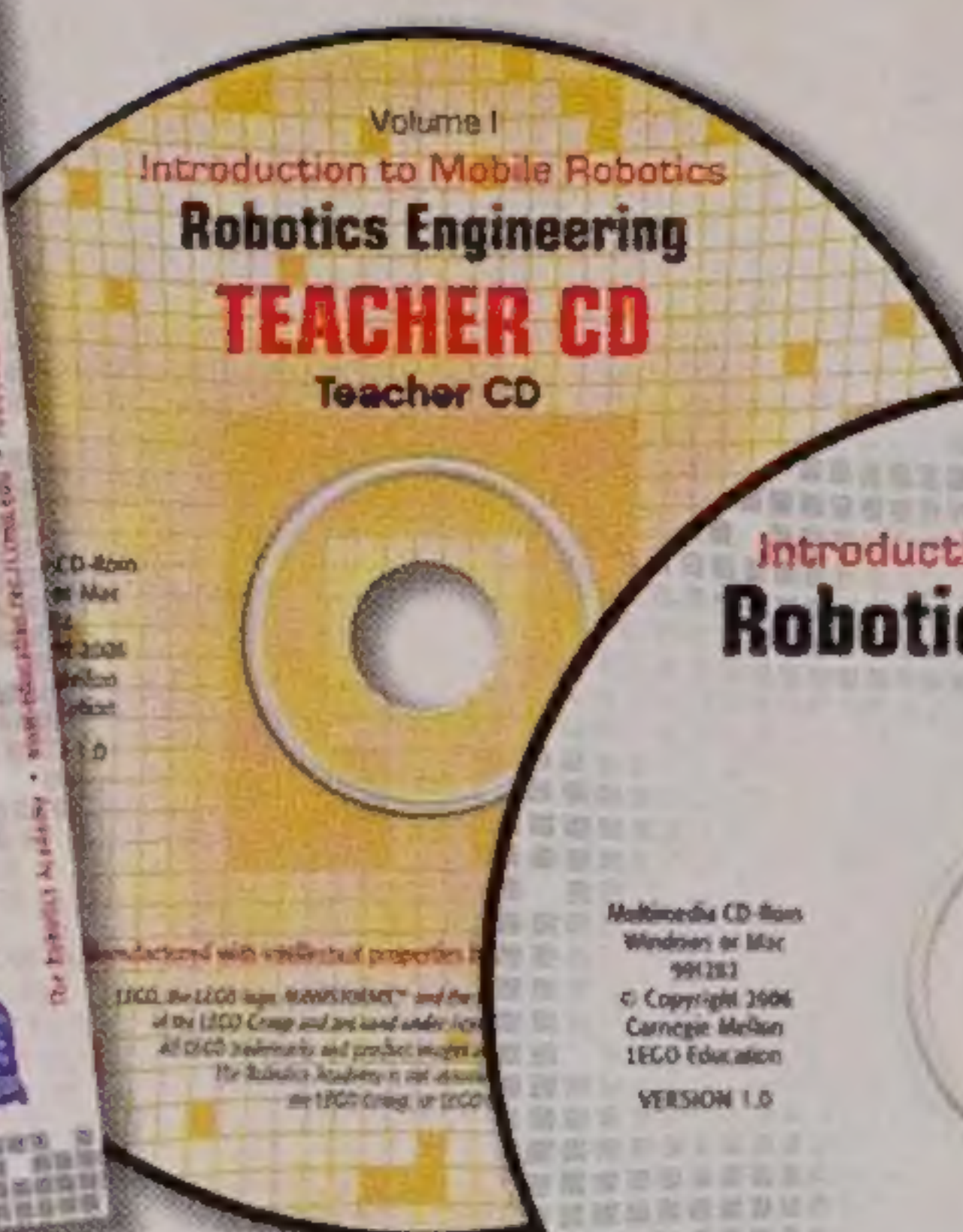
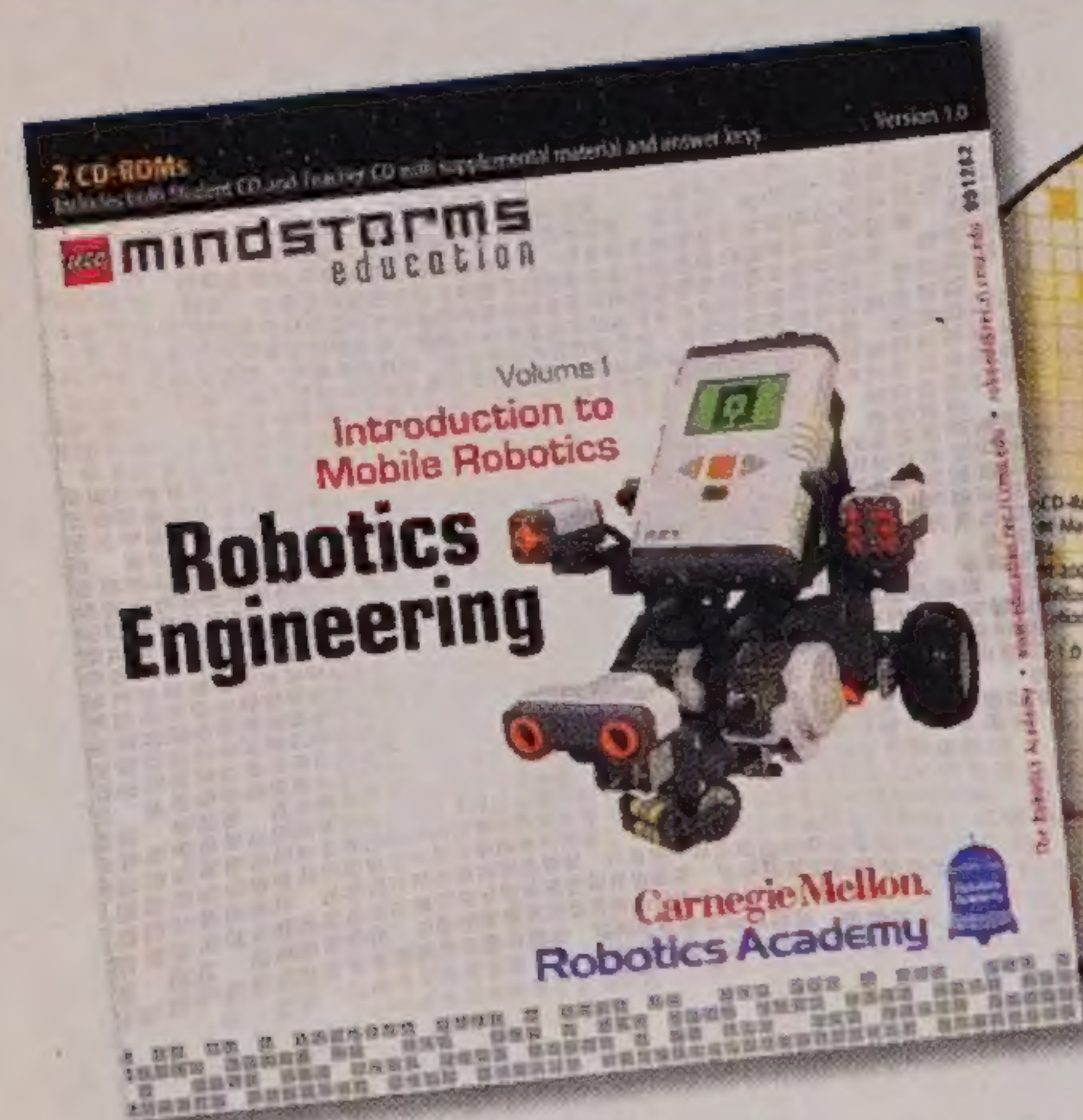
LEGO® MINDSTORMS® EDUCATION SOFTWARE 1.1 UPGRADE



For those who own version 1.0, this upgrade to the LEGO® MINDSTORMS® Education Software offers:

- Optimized performance and speed
- Memory compression (frees up 30 KB of usable memory on the NXT Intelligent Brick and shrinks sound files by 40%)
- NXT, which features intelligent scroll plus more than 100 other enhancements
- Compatibility with Windows Vista and the new Intel-based Macintosh systems

Z900093—\$19.99



NXT ROBOTICS ENGINEERING I: INTRODUCTION TO MOBILE ROBOTICS

This introductory CD-based curriculum provides six weeks of robotics instruction and serves as an exhaustive introduction to the LEGO® MINDSTORMS® Education NXT system and all concepts associated with mobile robotics. Students will progress through activities designed to teach programming, behaviors, systems, control, sensors, feedback, and more. Along the way, they will address key technology and science concepts. This two-CD set includes a student CD and a teacher CD. The teacher CD includes tips, notes, standards addressed, assessment rubrics, and more. The student CD provides great interactive instruction complete with video tutorials, building instructions, programming assistance, and much, much more! The CD curriculum can be loaded onto every computer in a single classroom. Developed at Carnegie Mellon University.

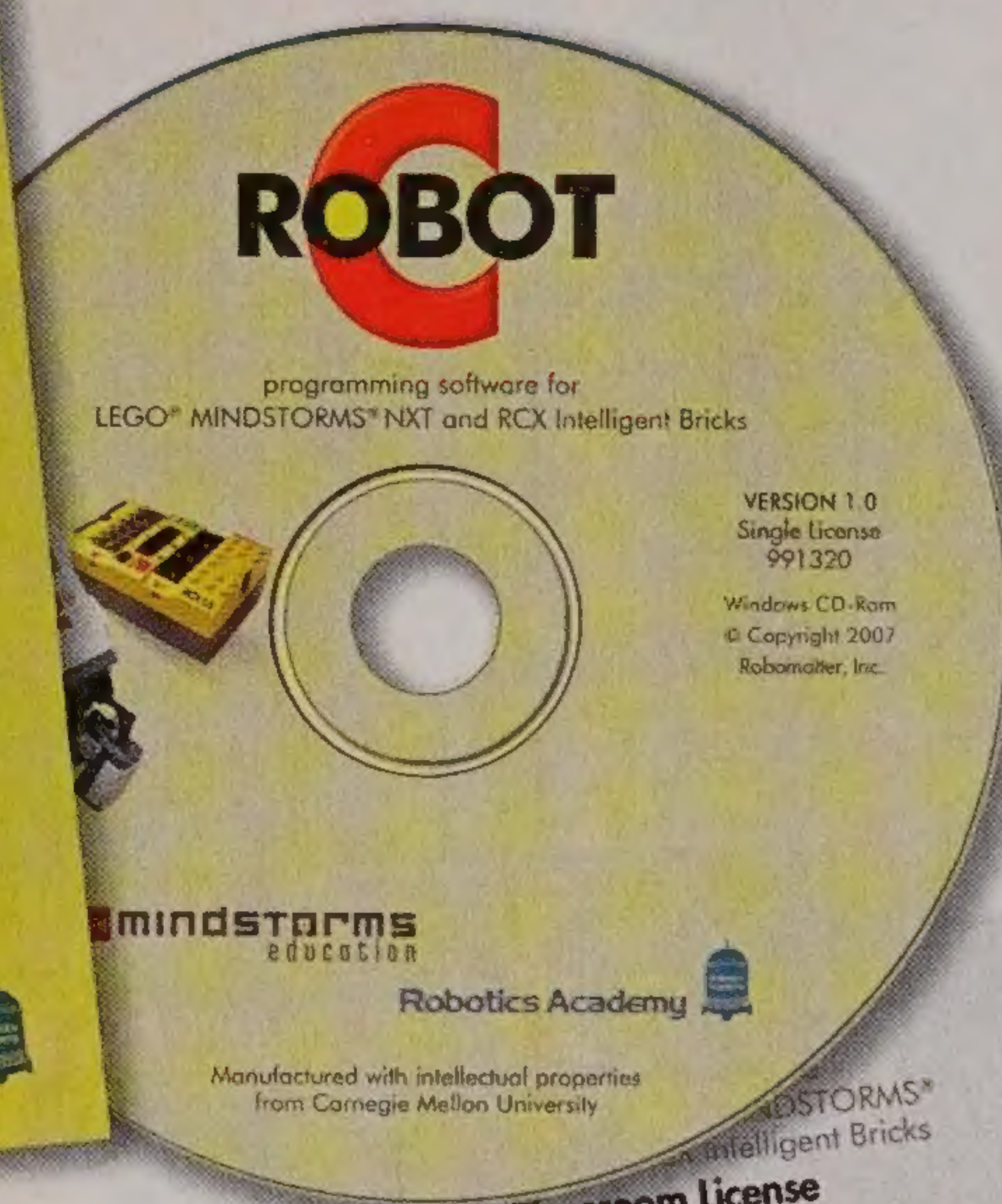
Z991282—\$225



NXT ROBOTICS ENGINEERING II: GUIDED RESEARCH CURRICULUM

This is the second in the series of LEGO® MINDSTORMS® Education NXT curriculum. The main section of this more advanced CD-based curriculum provides nine weeks of activities for three projects: Automated Mining, Patrol Robot, and Tree Measurer. Each of these three projects can then be followed up with a three- to five-week open-ended engineering research and design activity, the guidelines for which are included on the CD. This curriculum, combined with *Robotics Engineering I*, provides well over 18 weeks of robotics projects for middle and high school students. The *Robotics Engineering II Curriculum* focuses on applied inquiry, motivated design, communications technology, scanning, mapping, and more. Using the Engineering Design Inquiry process, the activities on this CD cover science, technology, engineering, and math topics. The three-disk set includes a DVD for Mac installs and two CD-ROMs for PC installs. The disks' teacher sections include tips, notes, standards addressed, assessment rubrics, and more. The student sections provide great interactive instruction – complete with video tutorials, building instructions, programming assistance, and much, much more! The CD curriculum can be loaded onto every computer in a single classroom. Developed at Carnegie Mellon University.

Z991283—\$225



ROBOT C SOFTWARE

Designed by the Carnegie Mellon Robotics Academy, *Robot C* is an alternative programming environment for your LEGO® robots. This C-based programming interface is the option to consider if you're looking for something other than the *NXT* graphics-based tools that are available. Because *Robot C* works with both the *NXT* and the *RCX*, classrooms that integrate both systems can use it to provide a uniform programming environment for either platform. A *Robot C* curriculum is also available. System Requirements: Windows XP Service Pack 2 or later.

Z991320 Robot C Software—\$49

Z991323 Robot C Software and Classroom License—\$265



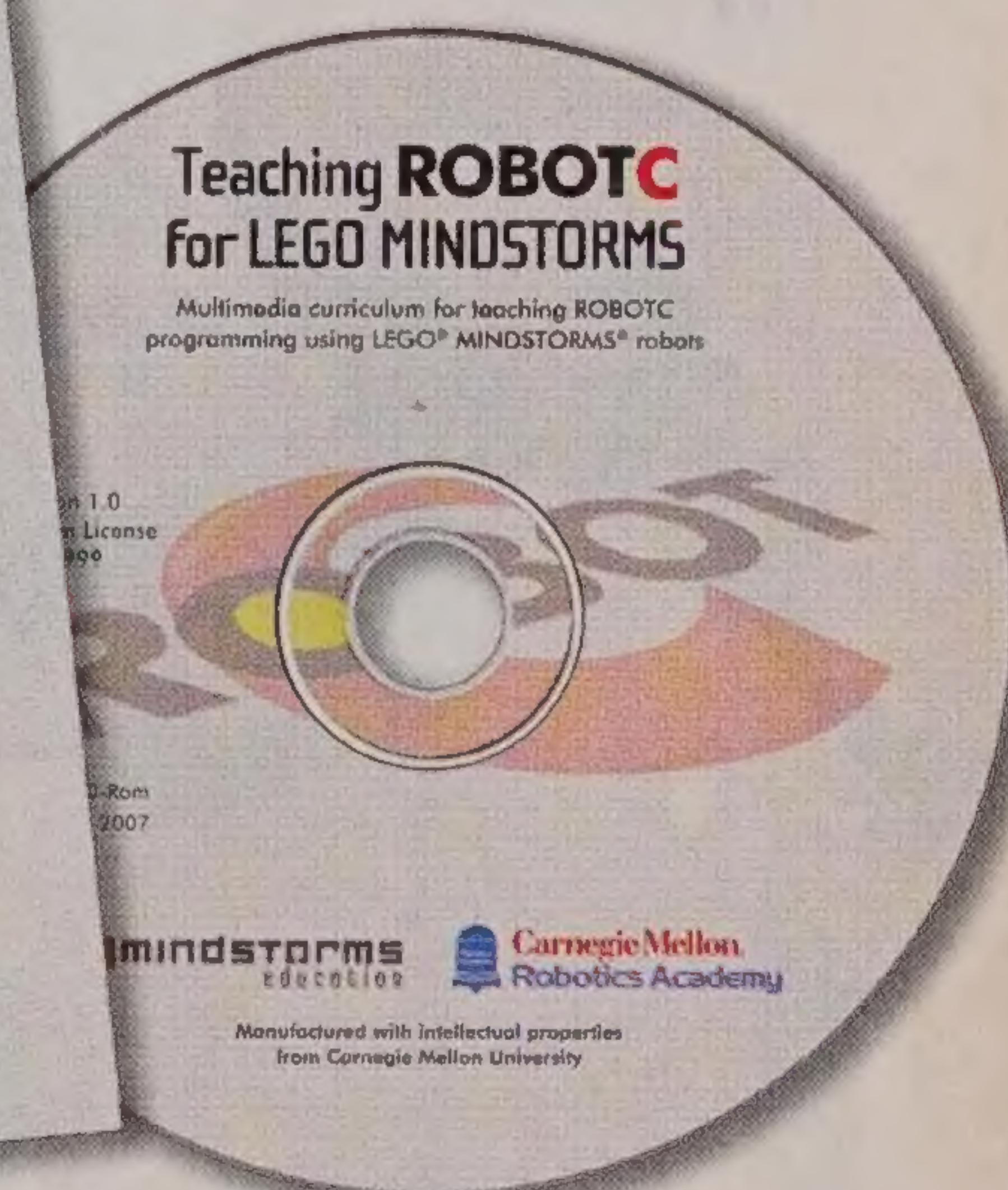
ROBOT C CURRICULUM

The Carnegie Mellon *Robot C* curriculum provides video-based instruction supporting the programming of robotic behaviors for both the *RCX* and *NXT*. Lessons are planned around one main robot model with additional components, such as sensors, added as needed in the lessons. Building instructions are included for the main robot.

The curriculum is designed to place programming activities in context with engineering challenges. The programming lessons are organized in topics: Movement, Sensing, Variables, Programming, Systems, and Advanced. The Movement section provides nine main lessons and a series of engineering extension activities in programming the robot to move forward, change speed and direction, control synchronized motors, PID, and precise positioning. The Sensing section includes 16 lessons, such as comparing touch and timing control, configuring sensors, setting thresholds, and line tracking. It also includes 10 open-ended programming challenges designed to allow students to practice the programming concepts that they just learned. The Variables section includes 13 lessons on topics such as variable types, setting thresholds, counting, functions, and passing parameters. The Programming section lessons focus on using functions, using parameters, and multitasking. The Advanced section uses several open-ended engineering challenges designed to allow students to practice their newfound programming skills.

Along with the curriculum materials, a Setup Guide with software downloads, step-by-step instructions, and troubleshooting information is included. Must be used with the Carnegie Mellon LEGO® Education *Robot C* software. Curriculum can be installed on every computer in a single classroom.

Z991376—\$225



NXT GS Packages



Save \$165

GS
GETTING STARTED

EXCLUSIVE



NXT ROBOTICS ENGINEERING I – GETTING STARTED PACKAGE

This Getting Started package is complete with everything you need to set up an NXT robotics classroom for 24 students working in pairs. The package comes complete with:

- Z979797 LEGO® MINDSTORMS® Education Base Set (12 sets included in GS package).....\$260
- Z991280 LEGO MINDSTORMS Education Software and Site License\$295
- Z991282 NXT Robotics Engineering I: Introduction to Mobile Robotics.....\$225
- Z991293 NXT Poster Pack.....\$20

Z991286 NXT Robotics Engineering I – Getting Started Package \$3,495

A \$3,660 value!



Save \$180

GS
GETTING STARTED

EXCLUSIVE



NXT ROBOTICS ENGINEERING II – GETTING STARTED PACKAGE

This Getting Started package comes with everything needed to conduct both beginner and advanced NXT robotics projects in your classroom. The package is designed for 24 students working in pairs and includes:

- Z979797 LEGO MINDSTORMS Education Base Set (12 sets included in GS package).....\$260
- Z991280 LEGO MINDSTORMS Education Software and Site License\$295
- Z991282 NXT Robotics Engineering I: Introduction to Mobile Robotics.....\$225
- Z991283 NXT Robotics Engineering II: Guided Research Curriculum.....\$225
- Z991293 NXT Poster Pack.....\$20

Z991288 NXT Robotics Engineering II – Getting Started Package \$3,705

A \$3,885 value!



Save \$115

NXT VALUE PACK – 12

Designed for 24 students working in pairs, the pack includes:

- Z979797 LEGO® MINDSTORMS® Education Base Set
(12 sets included in Value Pack)..... \$260
 - Z991280 LEGO MINDSTORMS Education Software and Site License \$295
- Z991290—\$3,300

NXT VALUE PACK – 10

Designed for 20 students working in pairs, the pack includes:

- Z979797 LEGO MINDSTORMS Education Base Set
(10 sets included in Value Pack)..... \$260
 - Z991280 LEGO MINDSTORMS Education Software and Site License \$295
- Z991414—\$2,825

Save \$70



NXT VALUE PACK – 8

Designed for 16 students working in pairs, the pack includes:

- Z979797 LEGO MINDSTORMS Education Base Set
(8 sets included in Value Pack) \$260
 - Z991280 LEGO MINDSTORMS Education Software and Site License \$295
- Z991291—\$2,335

Save \$40



NXT Value Packs



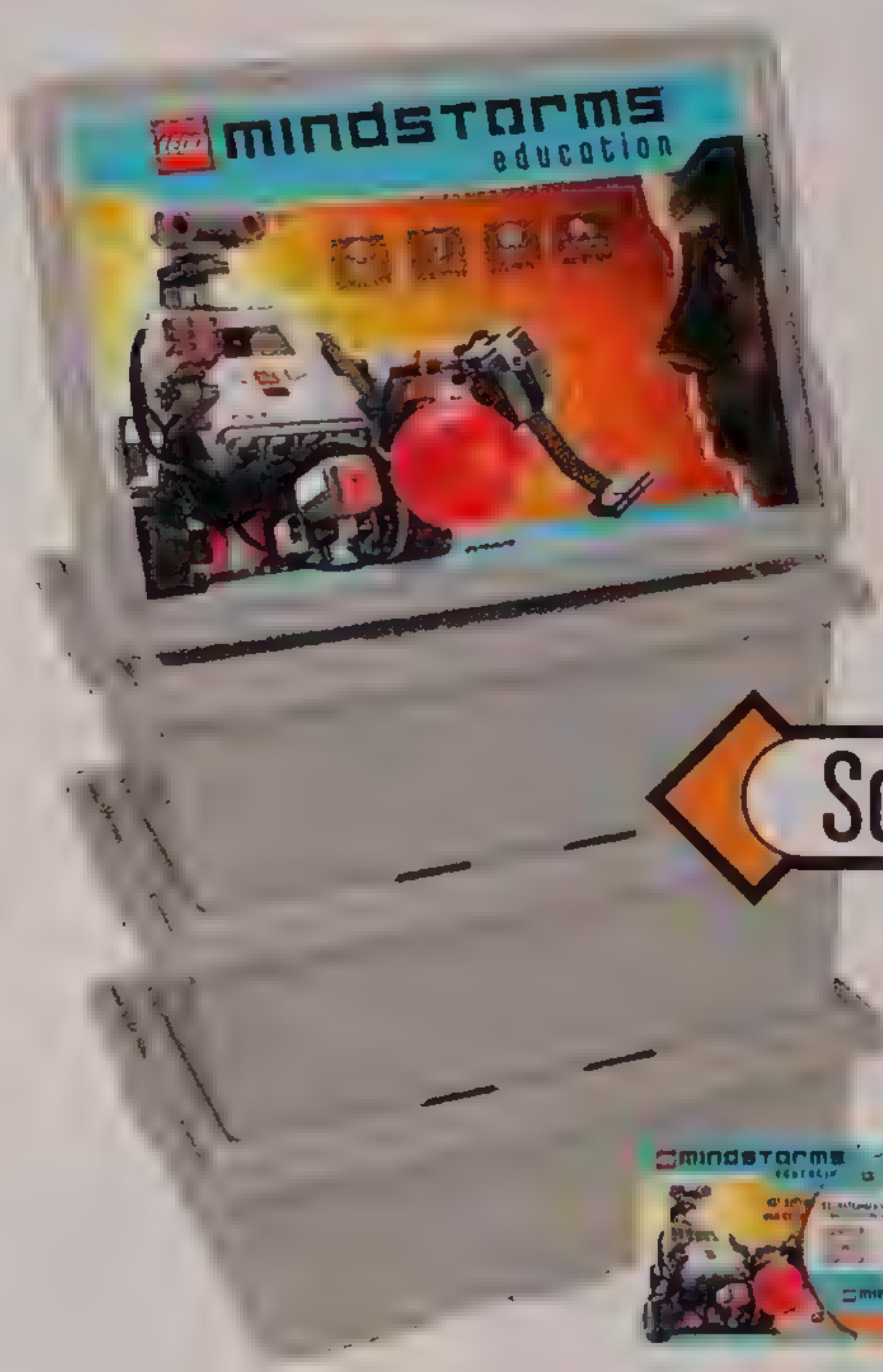
NXT VALUE PACK – 6



Designed for 12 students working in pairs, the pack includes:

- Z979797 LEGO® MINDSTORMS® Education Base Set
(6 sets included in Value Pack) \$260
 - Z991280 LEGO MINDSTORMS Education Software and Site License \$295
- Z991415—\$1,830

Save \$25



Save \$21

NXT VALUE PACK – 4

Designed for eight students working in pairs, the pack includes:

- Z979797 LEGO MINDSTORMS Education Base Set
(4 sets included in Value Pack)..... \$260
 - Z900077 LEGO MINDSTORMS Education Software
(4 single licenses included in pack) \$69
- Z991292—\$1,295



Save \$8

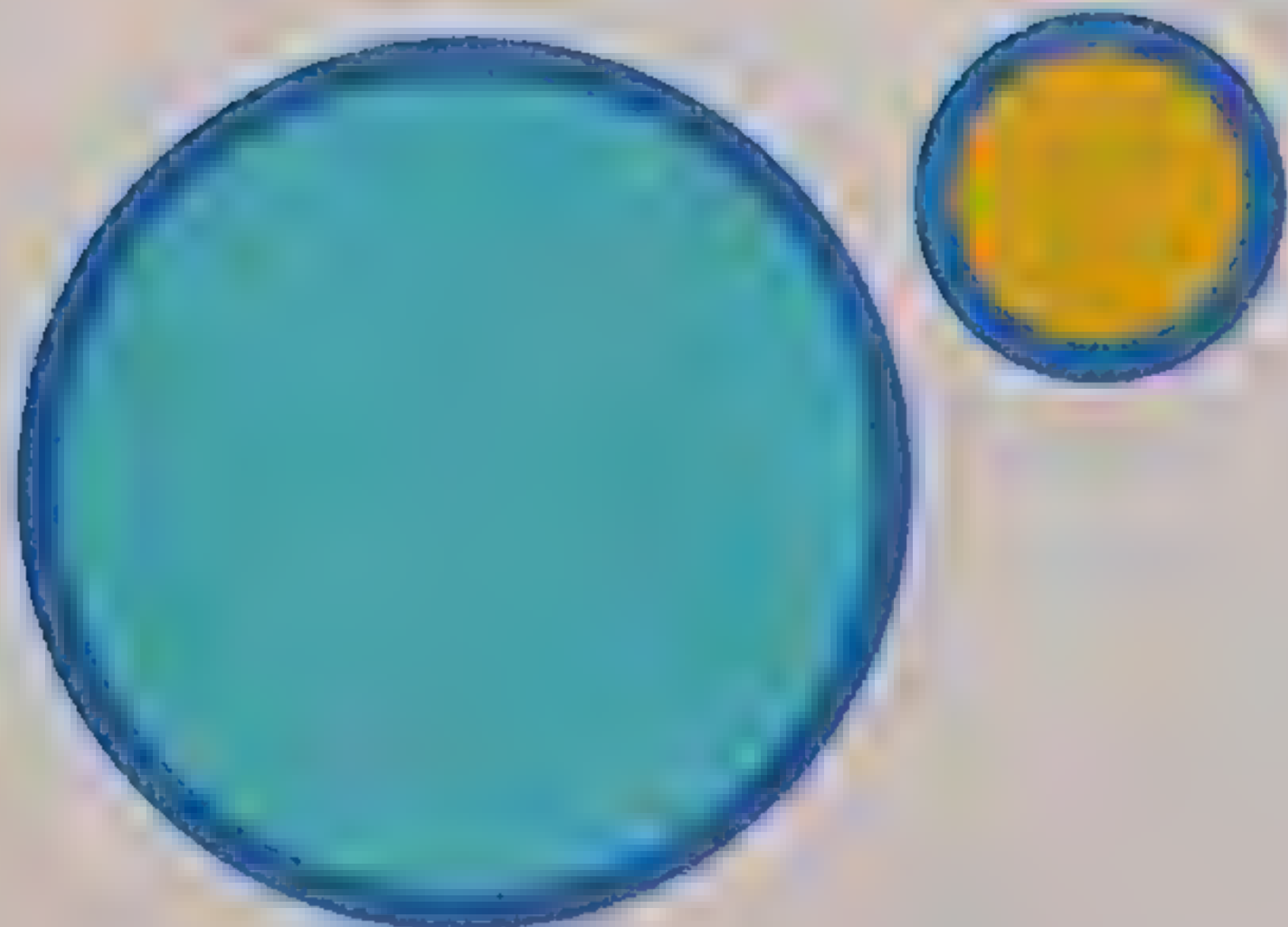
NXT VALUE PACK – 2



Designed for four students working in pairs, the pack includes:

- Z979797 LEGO MINDSTORMS Education Base Set
(2 sets included in Value Pack) \$260
- Z900077 LEGO MINDSTORMS Education Software
(2 single licenses included in pack)..... \$69

Z991416—\$650



NXT Set Packs

Already have LEGO® MINDSTORMS® NXT sets and LEGO MINDSTORMS Education v.1.1 Software?
Looking to add more sets to your classroom?
Then these packs are for you.



NXT SET 12 PACK (SETS ONLY)



- Z979797 LEGO MINDSTORMS Education Base Set (12 sets included in Pack).....\$260
Z991408—\$3,020



NXT SET 10 PACK (SETS ONLY)



- Z979797 LEGO MINDSTORMS Education Base Set (10 sets included in Pack).....\$260
Z991409—\$2,545

Save \$30



NXT SET 8 PACK (SETS ONLY)



- Z979797 LEGO MINDSTORMS Education Base Set (8 sets included in Pack).....\$260
Z991410—\$2,050

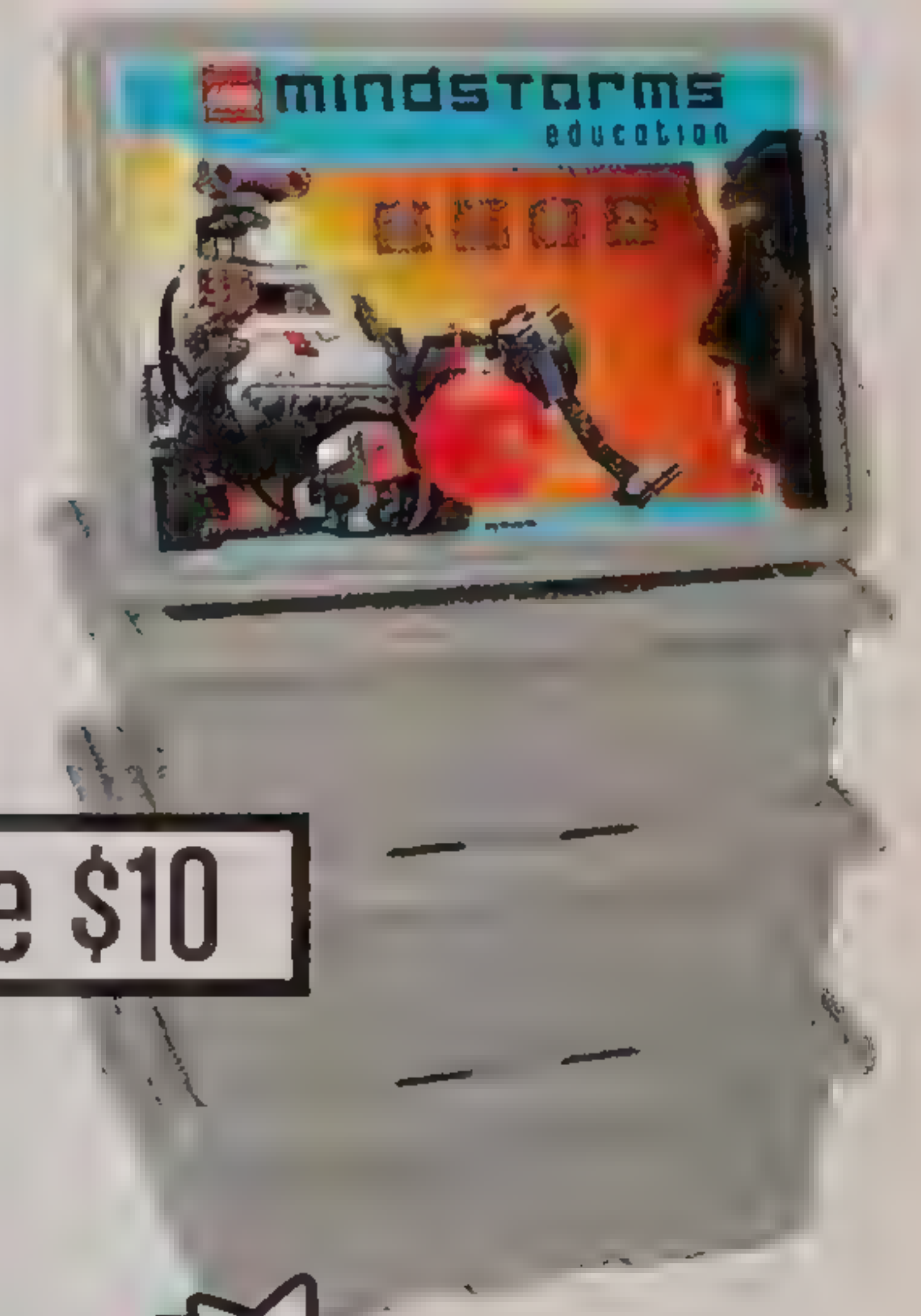
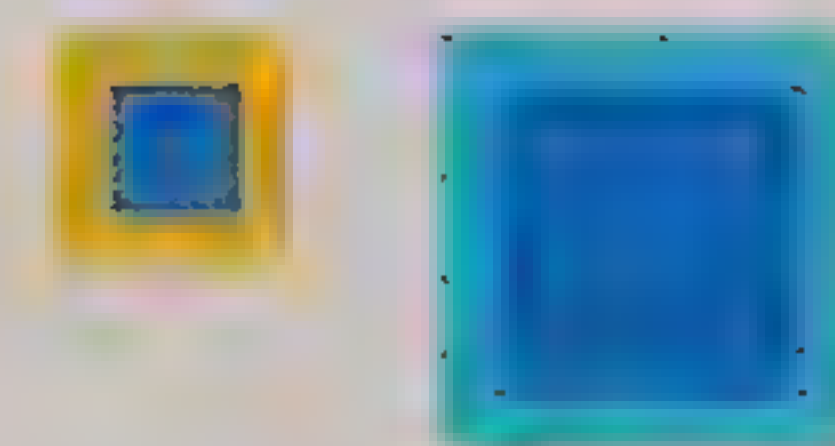


Save \$20

NXT SET 6 PACK (SETS ONLY)



- Z979797 LEGO MINDSTORMS Education Base Set (6 sets included in Pack).....\$260
Z991411—\$1,540



Save \$10

NXT SET 4 PACK (SETS ONLY)



- Z979797 LEGO MINDSTORMS Education Base Set (4 sets included in Pack).....\$260
Z991412—\$1,030

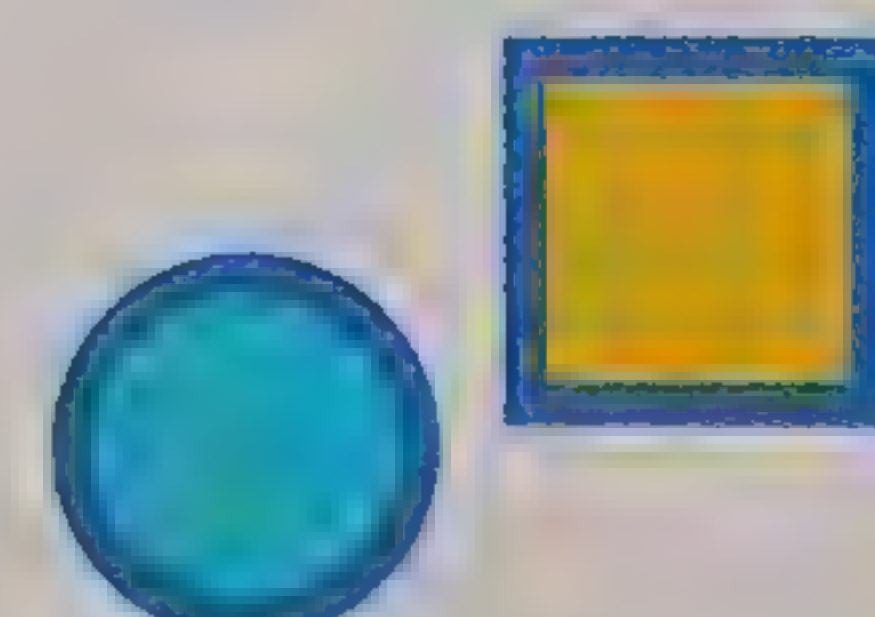


Save \$5

NXT SET 2 PACK (SETS ONLY)



- Z979797 LEGO MINDSTORMS Education Base Set (2 sets included in Pack)\$260
Z991413—\$515





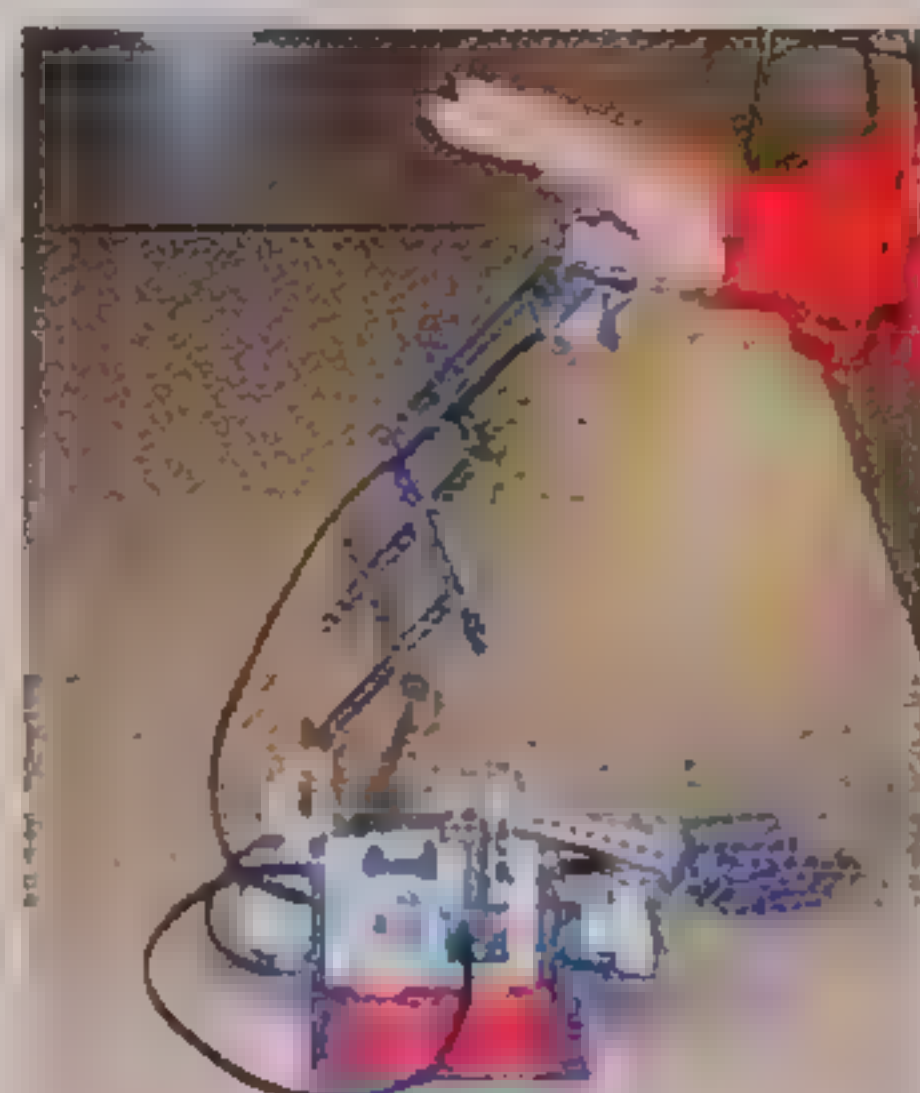
PHYSICS BY DESIGN EDITION II

This updated activity book uses engineering principles to teach physics and physical science with LEGO® Education robotics sets. This second edition includes updated and revised activities to take advantage of the LEGO MINDSTORMS Education NXT building system and ROBOLAB™ 2.9 software. In addition, it includes new activities for both the NXT and the RCX. The book has seven sections. The first section is an introduction with suggestions for managing the class and the materials. The book's next six sections help students progress through the levels of ROBOLAB™ and LEGO robot building while participating in increasingly difficult challenges that cover motion, forces, fluids, stability, work, and energy. The final section of the book contains labs for teaching physics. Bratzel has also correlated the activities in her book with the national science content standards for Grades 5-12, which you can see in two graphs at the back of the book. With plenty of photos, ROBOLAB™ screen shots, teacher notes, and reproducible student activity sheets, this book is an excellent addition to your physical science or technology class. The book's activities require the use of ROBOLAB™ 2.9, as well as the LEGO MINDSTORMS Education NXT Base Set, and/or the RCX Team Challenge Set. Paperback, 344 pages.

Z991355—\$36

Physics by Design

Second Edition



ROBOLAB
Activities
for the
NXT and RCX

Revised
and
Expanded

Barbara Bratzel
Foreword by Chris Rogers



MAXIMUM LEGO® NXT: BUILDING ROBOTS WITH JAVA BRAINS

Learn to build and program robots with Java, the most popular programming language, using only NXT elements. Using this book, your students will be able to build a chess-playing robot, an exoskeleton for a hand, a Mars rover, an arm controlled through the Internet, a 3-D object scanner, and more. This book was made for enthusiasts of all levels. It starts with a quick history of MINDSTORMS® and then moves on to an introduction to leJOS and Java. As they progress through the chapters, your students will learn new concepts and build on what was covered in previous chapters. With this book your students will discover how to:

- Install and use leJOS NXJ, the Java virtual machine for the NXT
- Build with studless LEGO® bricks.
- Learn Java using our complete beginner's guide.
- Imitate biological systems with Biomimetic Robots.
- Use Bluetooth with Pocket PCs, cell phones, and other devices.
- Augment your NXT kit with sensors and expansion products.
- Create unique projects using GPS, a video camera, a data glove, and other gadgets.

Paperback, approximately 512 pages.

Level: High School

Z991375—\$32.95



ENGINEERING WITH LEGO® BRICKS AND ROBOLAB™



This third edition by Eric Wang introduces your students to engineering concepts in a fun and challenging way, using ROBOLAB™ 2.9 and the NXT. The assignments in the book take the form of open-ended design challenges with no ceiling, meaning they can be accomplished with a moderate amount of effort or can be made more complicated to fit your students' needs. By the time your students finish the activities in the book, they will be able to describe the design process, read a ROBOLAB™ program and interpret what the robot will do, apply basic engineering principles and problem-solving methodologies, solve open-ended problems given specifications and constraints, apply creative thinking strategies to solve open-ended problems, and write complex computer programs that use variables, conditionals, subroutines, and multitasking. Paperback, approximately 350 pages.

Level: High School

Z991372—\$49

ENGINEERING WITH LEGO® BRICKS AND ROBOLAB™

Third Edition

The unofficial guide to ROBOLAB 2.9™



ERIC WANG

In consultation with
Bernard Catt

Software sold separately.



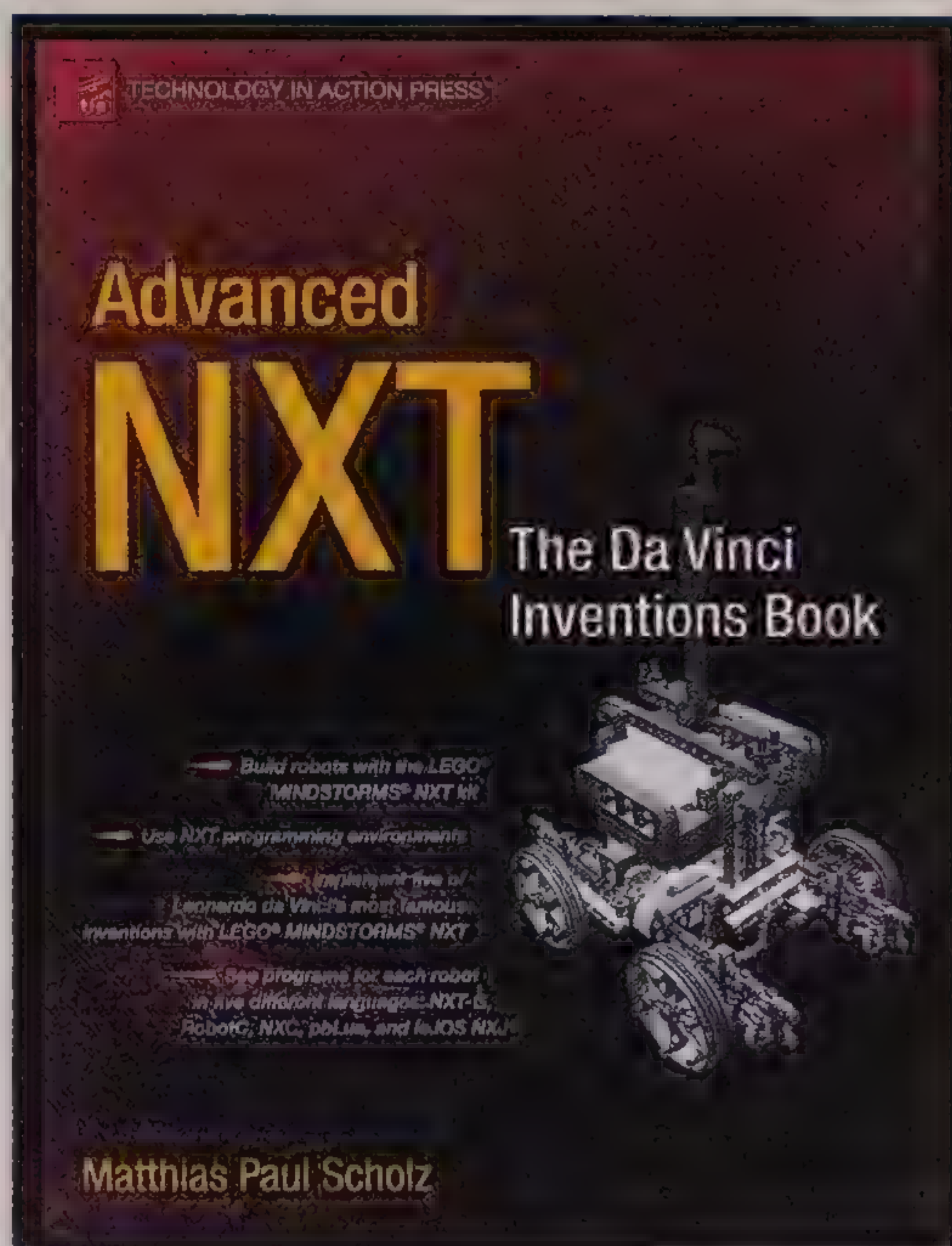
ADVANCED NXT – THE DA VINCI INVENTIONS BOOK

In this book, you and your students will revive such fascinating devices as the flying machine, the aerial screw, the revolving bridge, the double-leaf spring catapult, and the armored car five centuries after their creation by the great Renaissance engineer. Using some of the most advanced programming environments for NXT, you will make robots that work, move, and respond the way Leonardo intended his original inventions to do 500 years ago.

By engineering the models contained in this book, you will not only become acquainted with the MINDSTORMS® technology but also with strategies to build advanced robots with NXT and to program them using different state-of-the-art NXT programming languages, such as NXT-G, NXC, Robot C, pbLua and leJOS NXJ. Paperback, 369 pages.

Level: Intermediate-Advanced

Z991389—\$34.99



The LME Base Set and the Education Resource Set may be required to complete models in all of these books.



LEGO® MINDSTORMS® NXT IDEA BOOK

With this book, you and your students will learn the fundamentals of programming and design, accompanied by CAD-style drawings and an abundance of screen shots that make it easy for you to master the MINDSTORMS® NXT system. You'll get an overview of the NXT parts (beams, sensors, axles, gears, and so on) and clear instructions for combining them to build and program working robots. The LEGO® MINDSTORMS NXT Idea Book delves into the complexities of the NXT programming language and offers tips for designing and programming robots, using Bluetooth, creating an NXT remote control, troubleshooting, and much more. The book also includes building and programming instructions for eight robots. Paperback, 350 pages.

Level: Intermediate

Z991397—\$29.95



BUILDING ROBOTS WITH LEGO® MINDSTORMS® NXT

The authors of this book explore the new LEGO® MINDSTORMS® NXT system, which has been updated with the improved programmable NXT Brick, more sensor ports, USB cable, RJ11-like cables, motors, and sensors. This book covers new features and functionality found with the LEGO MINDSTORMS NXT system and shows how sound, sight, touch, and distance issues are now dealt with.

Some of the world's leading LEGO MINDSTORMS inventors share their knowledge and development secrets. You will discover an incredible range of ideas to inspire your next invention. This is the ultimate insider's look at the LEGO MINDSTORMS NXT system and is the perfect book whether you build world-class competitive robots or just like to mess around for the fun of it. Paperback, 480 pages.

Level: Intermediate

Z991391—\$39.95



THE UNOFFICIAL LEGO® BUILDER'S GUIDE

This book is a great reference tool for teachers, enthusiasts, and builders on all levels. The author, Allan Bedford, presents best practices, tips, and techniques along with background information on such subjects as architecture, design, engineering, color, and theory. The book also includes a section called "Brickopedia," which describes over 250 elements, including basic bricks, Technic, and specialty bricks. The Brickopedia describes the elements by category, subcategory, description, and part number. It also contains historical and usage notes along with the year they were introduced.

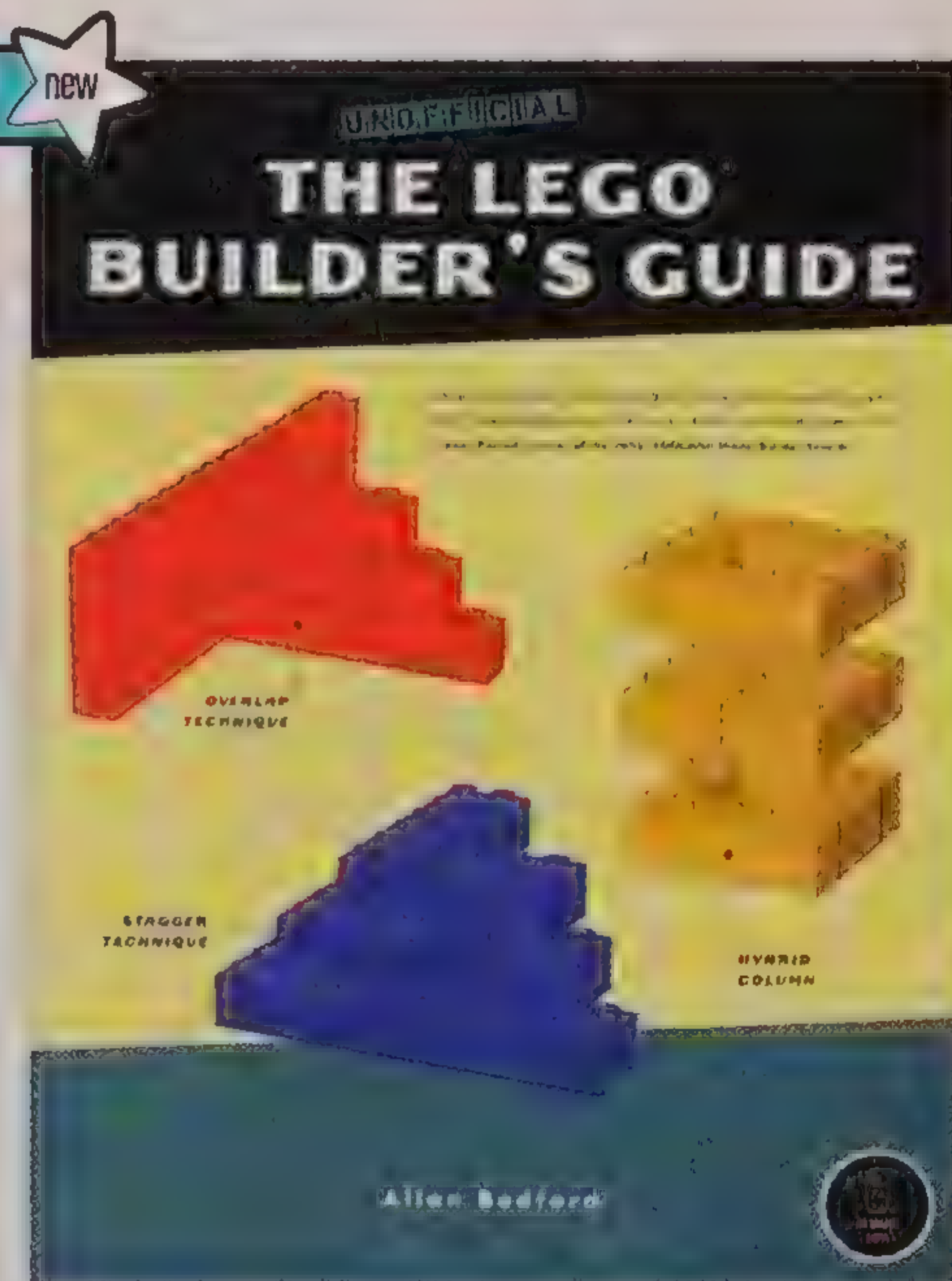
The book also provides:

- The best ways to connect bricks and creative uses for those patterns.
- Tricks for calculating and using scale.
- Tips on building structures and mosaics.
- An introduction to making and playing games with LEGO® bricks.
- Tips for sorting and storing all of your LEGO pieces.

Paperback, 330 pages.

Level: Beginner-Intermediate

Z991390—\$24.95



LEGO® MINDSTORMS® NXT THE MAYAN ADVENTURE

This book is a fun and adventurous way to teach your students how to build and program robots. The book uses a fictional storyline that runs throughout the book in Chapters 1, 5, 9, 13, and 17, which concludes in Chapter 21. The storyline is used to set up the challenge for five different robots. Each robot has four chapters associated with it – the first chapter is the fictional storyline, the second is the theory and discussion chapter that uses the “Design Journal Page,” the third includes complete building instructions, and the fourth includes programming instructions. Paperback, 308 pages.

Level: Upper Elementary-Middle School

Z991341—\$24.99



MAYAN ADVENTURE PARTS PACK

A few of the models in *The Mayan Adventure* require extra parts not included in the LEGO® MINDSTORMS® Education Base Set. These parts are included in the *Education Resource Set*, so please use those if you already own them. If not, this inexpensive pack will provide exactly what you need. One pack per LEGO MINDSTORMS Education Base Set is needed.

Z991378—\$15

The LME Base Set and the Education Resource Set may be required to complete models in all of these books.



LEGO® MINDSTORMS® NXT-G PROGRAMMING GUIDE

An excellent guide for the beginner programmer, the LEGO® MINDSTORMS® NXT-G Programming Guide walks you through the basics needed to understand the drag-and-drop programming environment that is NXT. This book is the perfect reference for using the software to its maximum potential and is written for all audiences – kids, teachers, parents, and coaches.

The key to creating the best programs for your robots is knowing the ins and outs of each and every block. Author James Kelly does an excellent job of explaining all 36 basic programming blocks and the My Block, which allows you to create your own blocks. By the time you finish this book, you will be able to better organize your thoughts, allowing you to create programs that require less troubleshooting. Paperback, 196 pages.

Level: Beginner-Intermediate

Z991385 - \$29.95



COMPASS SENSOR EXPERIMENTS



The Compass Sensor brings a variety of new functions to explore with your NXT robots. Covering absolute heading, relative heading, target heading, the programming block, and all its data plugs, this workbook provides a detailed look at the features of the Compass Sensor, as well as plenty of programs and activities to gain experience using it.

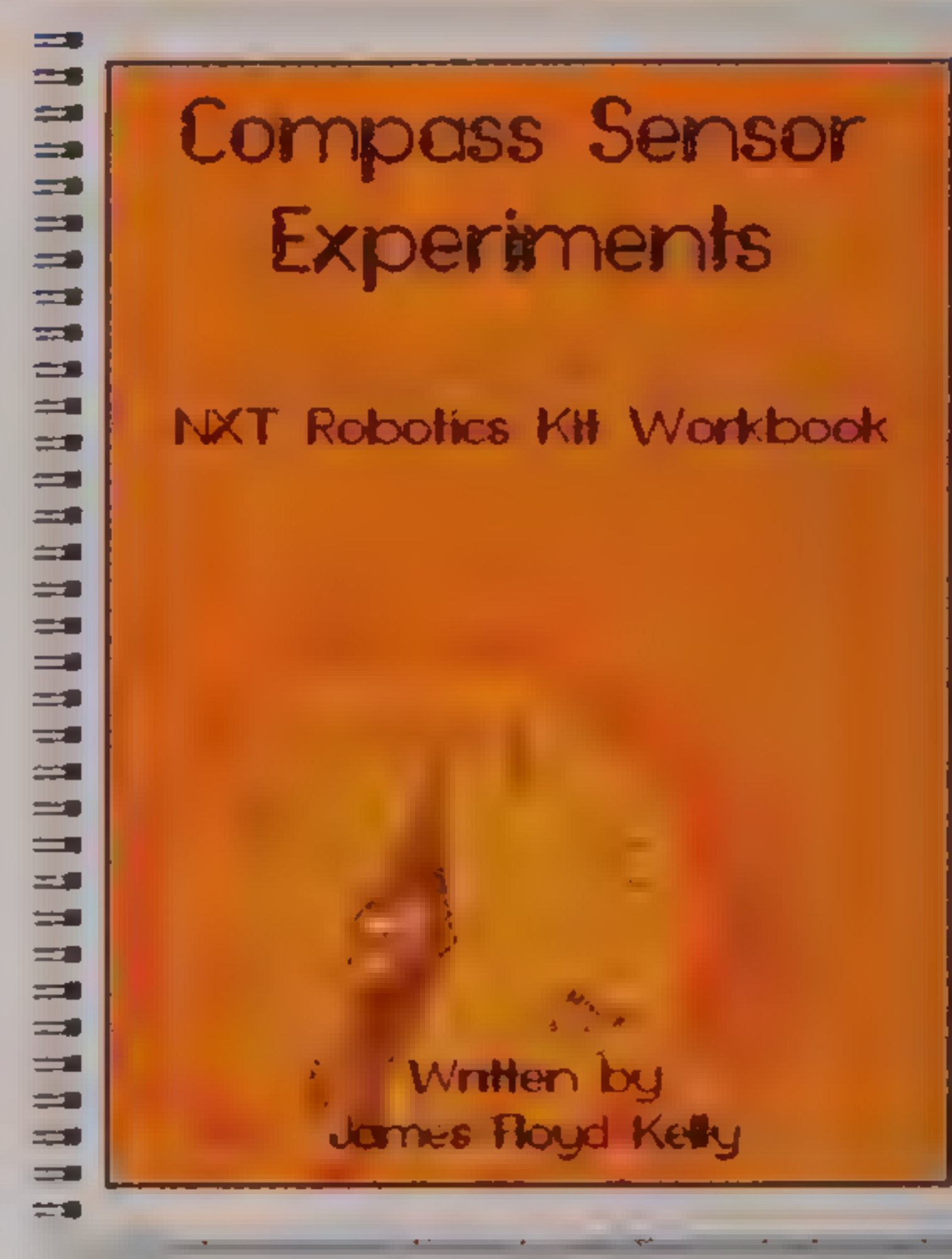
The workbook includes:

- Three hands-on experiments for giving students a better understanding of the sensor and its functions.
- Five sample programs for upload to your NXT robot that demonstrate the power of the Compass Sensor.
- URL/Web links for downloading all programs used in the workbook, as well as the worksheets for all student activities.
- A special introduction to data logging with sample programs for your robot and steps for importing data from your robot to a spreadsheet for creation of a graph.
- Full coverage of the Compass Sensor programming block and all its configuration panel settings.

Paperback, 99 pages.

Level: Intermediate

Z991406—\$45



GEARING UP FOR PROGRAMMING AND ENGINEERING



Gearing Up for Programming and Engineering is an engaging and comprehensive robotics curriculum that uses the LEGO® MINDSTORMS® NXT system and instructional strategies that provide opportunities for students to become familiar with programming and engineering language. Students will be drawn to the activities as they explore programming techniques and engineering strategies for their LEGO MINDSTORMS NXT robot. Teachers become more than troubleshooters as their students gain confidence and proficiency in programming and engineering while accomplishing discrete tasks with their robots. The activities found in the curriculum can be used in a traditional learning environment led by a classroom teacher or in an informal after-school setting (such as FIRST LEGO League) led by a robotics coach. *Gearing Up for Programming and Engineering* comprises approximately 15 hours of activities. It comes complete with teacher notes, building instructions, student master copies, and extra parts for building the unique *Gearing Up NXT* robot. The activities are presented in a three-ring binder, and a CD is included that features all of the materials in electronic format.

Gearing Up for Programming and Engineering will prepare students for robotics challenges included in the Gearing Up series (*Gearing Up for the International Space Station*, *Gearing Up for Mars Madness*, and *Gearing Up for the Return to the Moon*). Check LEGOeducation.com throughout 2008 for the series introduction.

Z991425—\$49



Cover Artwork May Vary.



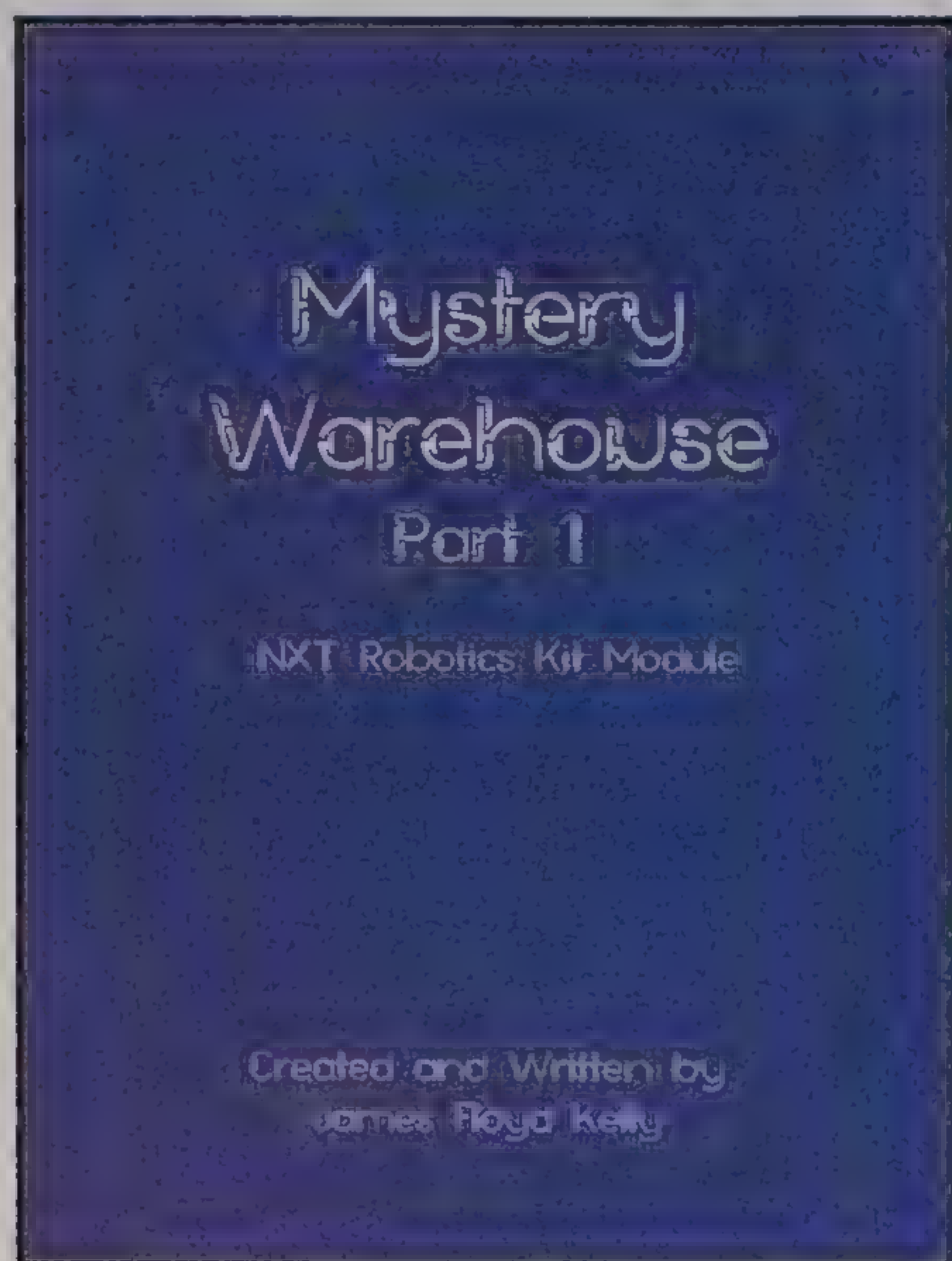
MYSTERY WAREHOUSE PART 1

Mulligan's uncle has disappeared, and the only clue is a mysterious note. Tagging along with Mulligan on the adventure is Veronica, his friend from school. Inside a dark and eerie warehouse, someone is testing the robot-building and robot-programming skills of these two friends, and the race is on to complete some very strange challenges and find Mulligan's missing uncle.

Students will participate in two prechallenge activities and one main challenge as they build and program a robot using the new *HiTechnic Compass Sensor*. CAD building instructions and complete programming instructions are provided along with Web links for downloading all programs used in the module. Story and worksheets can be reproduced for helping students track their progress in prechallenge and main challenge activities. Paperback, 69 pages.

Level: Intermediate

Z991388—\$39



MYSTERY WAREHOUSE PART 2

Part 2: Continuing the story from *Mystery Warehouse Part 1*, Mulligan and Veronica are discovering more information about the disappearance of Uncle Dewey. Time is running out, and they have to work fast. Their robot-building and robot programming skills continue to be put to the test as they move deeper into the strange warehouse.

Students will participate in two prechallenge activities and one main challenge as they build and program a robot using the new *HiTechnic Color Sensor*. CAD building instructions and complete programming instructions are provided, along with Web links for downloading all programs used in the module.

Story and worksheets can be reproduced to help students track their progress in prechallenge and main challenge activities. Paperback.

Level: Intermediate

Z991394—\$39



MYSTERY WAREHOUSE PART 3

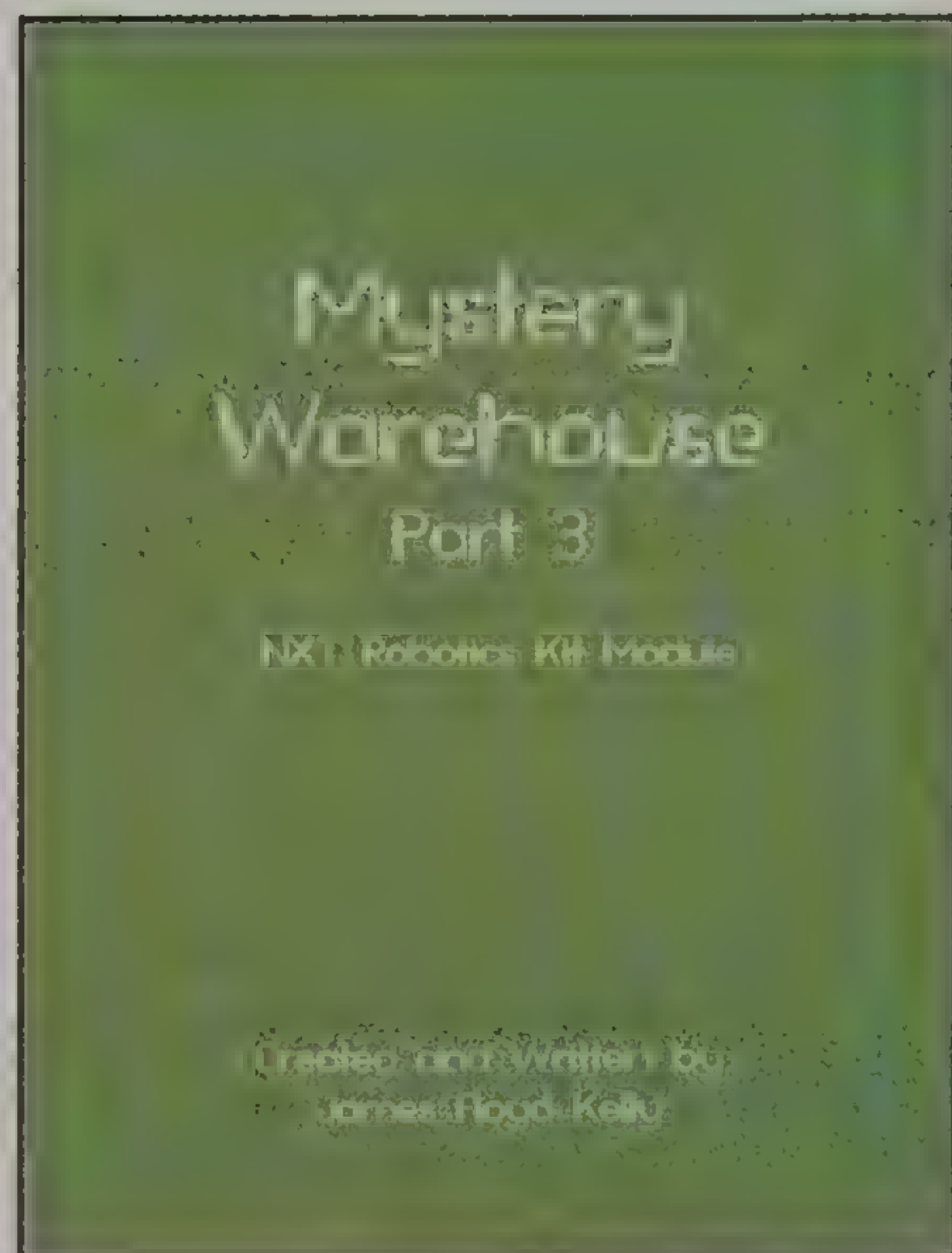
Part 3: Concluding the story from *Mystery Warehouse Part 1* and *Mystery Warehouse Part 2*, Mulligan and Veronica are about to discover the secret to Uncle Dewey's disappearance. One final challenge awaits them as they race to solve the mystery of the warehouse.

Students will participate in two prechallenge activities and one main challenge as they build and program a robot using the new *HiTechnic Acceleration Sensor*. CAD building instructions and complete programming instructions are provided, along with Web links for downloading all programs used in the module.

Story and worksheets can be reproduced to help students track their progress in prechallenge and main challenge activities. Paperback.

Level: Intermediate

Z991395—\$39

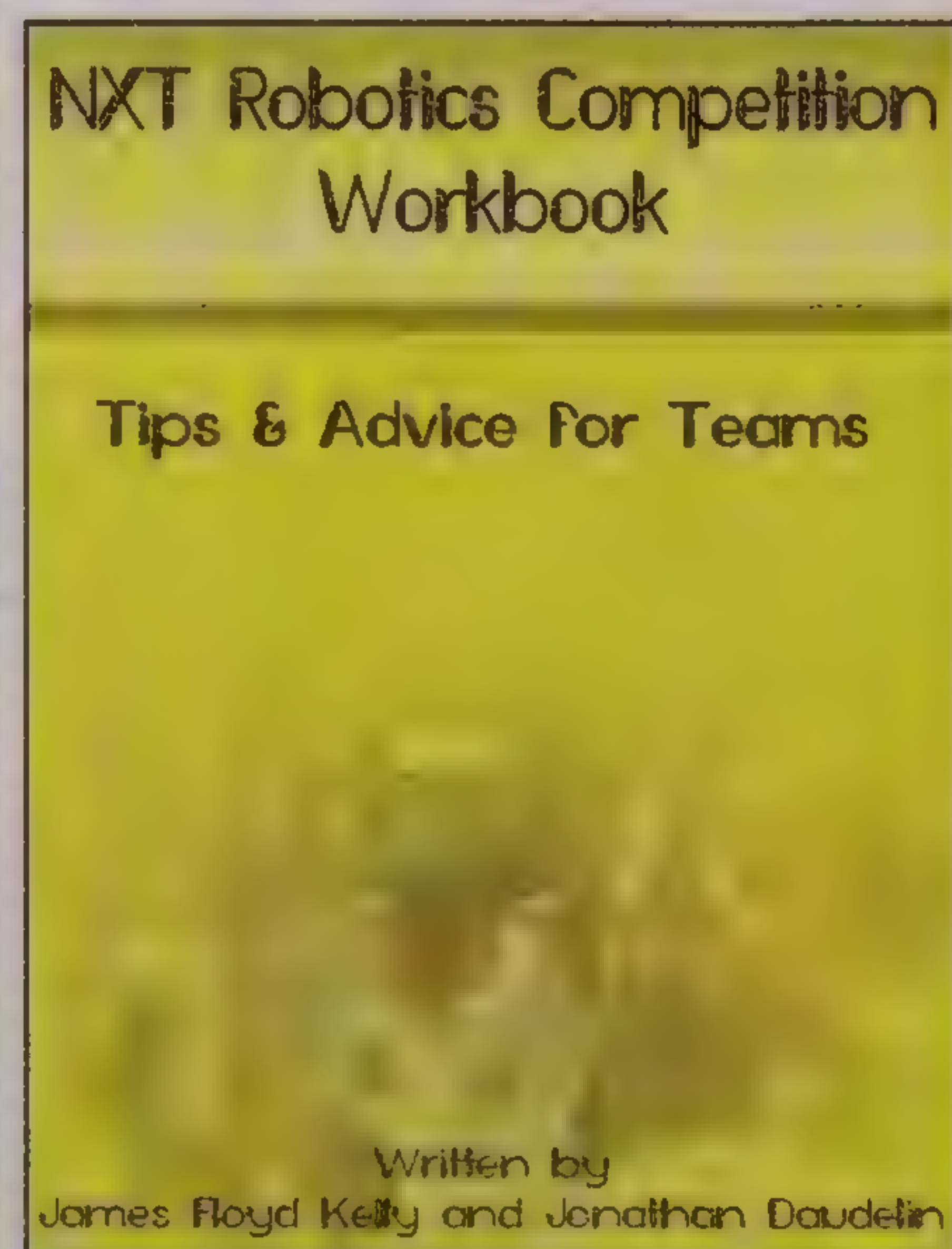


NXT ROBOTICS COMPETITION WORKBOOK

The *NXT Robotics Competition Workbook* is a great resource for new and experienced teams. There are so many things that must be done to prepare for a competition, and the information contained here will help teachers, coaches, mentors, and students begin organizing and tackling the challenges ahead. If your team is asking itself "What do we do now?", then this workbook is for you. Offering tips and advice on scheduling, team organization, building and programming, and more, this useful workbook will assist your team in getting started, staying focused, and productively moving forward. Paperback, 93 pages.

Level: Upper Elementary-Middle School

Z991393—\$25





How do I use sensors and LEGO® MINDSTORMS® Education NXT Software in my classroom?

That's a fair question! Here are a few examples of projects that use LEGO® MINDSTORMS® Education NXT Software and sensors for sensing and controlling. While these projects may give you some ideas, real-life applications and your students' imaginations will provide you with a wealth of additional ideas!



Light Sensor

- Set up a speed trap for mousetrap or LEGO vehicles to determine their speed as they break two light beams a short distance apart.
- Make a photo-finish camera that takes digital pictures of vehicles as they cross the finish line of a race.
- Make a robotic platform that always turns your plant to face the Sun.

NXT LIGHT SENSOR

The *NXT Light Sensor* is sensitive and precise. It reads light intensity from the surrounding environment, as well as the reflection from the infrared transmitter. The IR light source can be turned off for an accurate ambient light reading.

Z979844—\$17



Sound Sensor

- Control your robot remotely with a clap or two of your hands.
- Make a noise-level indicator for your classroom or lunchroom that raises a "Quiet Please" sign when a preset noise level is reached.
- Control the speed of your robot based on the sound in the room – the louder it is, the faster it goes.

NXT SOUND SENSOR

This sophisticated sensor provides a new stimulus for directing a robot's actions. The sensor measures dB and dBA and recognizes sound patterns and tones.

Z979845—\$25



Touch Sensor

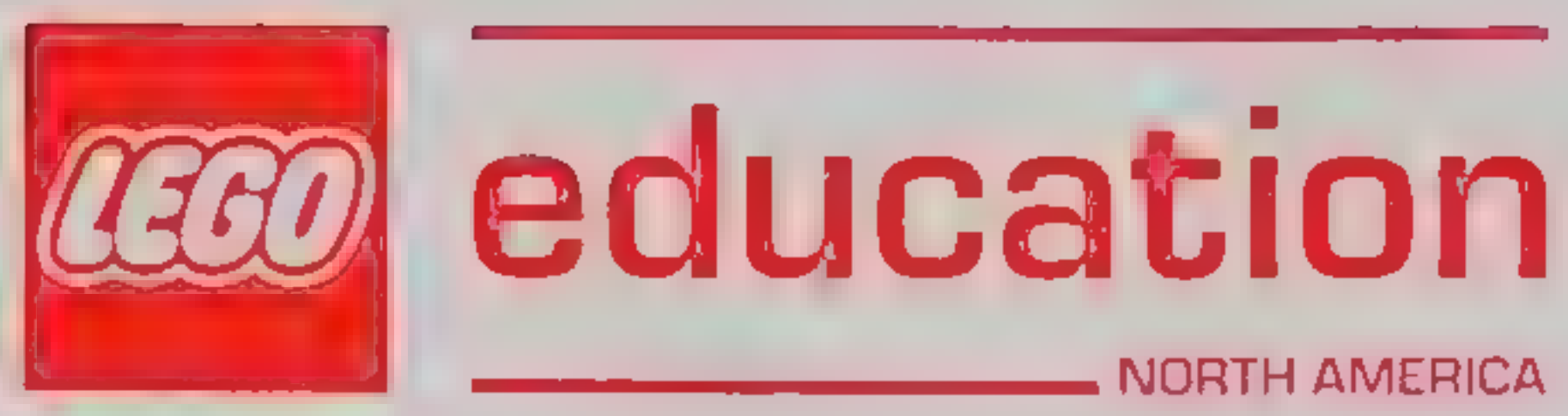
- Determine when your robot has run into something, then back up and turn to get around the object.
- Build a locker security system that takes a picture of everyone who opens the locker.
- Use the touch sensor on a robotic arm to have it know when an object has been picked up.

NXT TOUCH SENSOR

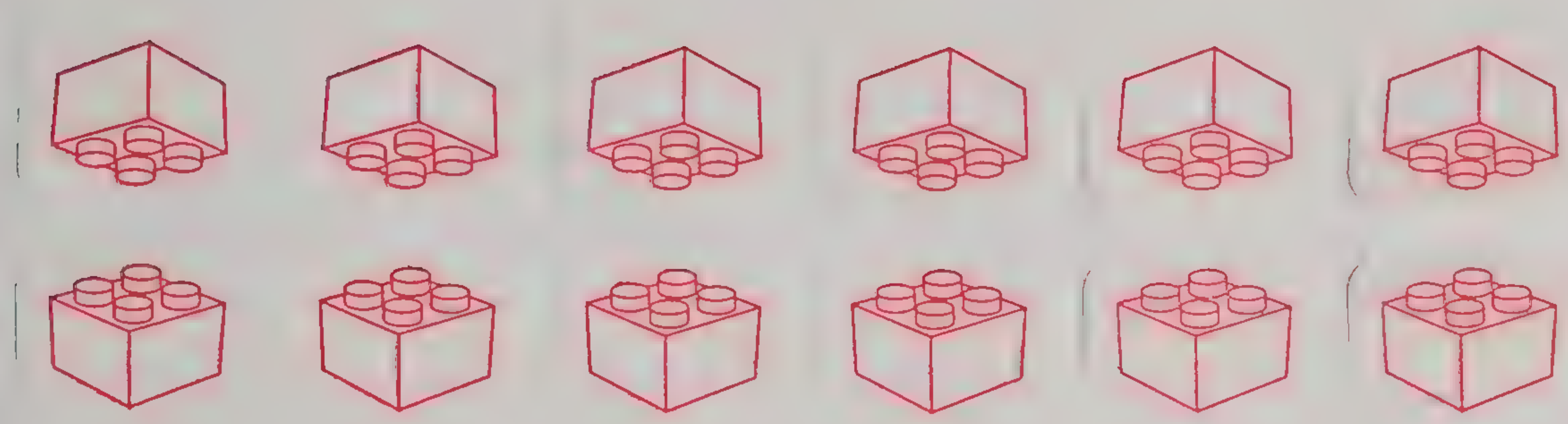
This touch sensor is very basic and is either on or off depending on the position of the push button. The *NXT Touch Sensor* features a hole for an axle in the push button, giving users more options for incorporating the sensor into their designs.

Z979843—\$17

Use these Post-it® Flags
to mark the pages of the
items you like!



Post-it® Flags. • "Post-it" is a registered trademark of 3M.





Ultrasonic Sensor

- Have your robot navigate around a room without touching the objects it encounters.
- Make a robot sentry that sounds an alarm when someone enters a room.
- Make an instrument that plays crazy sounds as you dance in front of it.

NXT ULTRASONIC SENSOR

This exciting sensor uses ultrasonic measurements to “see” its surroundings. The sensor works by sending out a signal and then waiting for that signal to return. By measuring the time elapsed during the signal’s journey, the sensor can determine the distance from the object.

Z979846—\$32



Acceleration Sensor

- Fasten on your *NXT* and *Acceleration Sensor* and record your ride on a swing or rollercoaster. Graph the results and see if you can identify the different parts of your ride.
- Use the *Acceleration Sensor* to change the power level of your robot’s motors depending on the angle of incline.
- Make a robot that rights itself when flipped over.

HITECHNIC ACCELERATION SENSOR FOR NXT



Now you can make robots that know which way is up! The *HiTechnic Acceleration Sensor* measures acceleration in three axes — x, y, and z. It also measures tilt along each axis. Using the sensor, you can measure the acceleration of your robot in the range -2 g to +2 g, with scaling of approximately 200 counts per g. The acceleration measurement for each axis is refreshed approximately 100 times per second. The sensor is great for experimenting and modeling acceleration forces in cars, on amusement rides, even on swing sets. This sensor will also tell you if your robot is level so

Z991349—\$47

you can build self-leveling robots and much more. The *Acceleration Sensor* connects to an *NXT* sensor port using a standard *NXT* connector cable and is housed in the *MINDSTORMS® Education* sensor housing. The sensor requires the *NXT* firmware version 1.03 or higher, which is available on the *MINDSTORMS® Education Software*. The *Acceleration Sensor* block is available for free download. Visit www.LEGOeducation.com/hitechnic for details. *NXT* connector cables are sold separately and are included in the *LEGO® MINDSTORMS Education Base Set*.



Color Sensor

- Make a brick-sorting robot that sorts different-color LEGO® bricks into different cups.
- Have your robot speak the color of LEGO bricks placed in front of it.
- Make a lockbox that only opens with the proper color-coded keycard.
- Make a color organ that plays a tune based on what colors are fed to it.

HITECHNIC COLOR SENSOR FOR NXT



Add a spectrum of color to your models with the *HiTechnic Color Sensor*! Detect a range of target colors and program your *NXT* robot to react to each color. Build a color sorter to sort LEGO® bricks or a line follower that will detect different-colored lines and surfaces. The *Color Sensor* is “tuned” to standard LEGO colors. When positioned over a surface, the sensor will return a numeric value identifying the target color. The sensor operates by using three different-color light-emitting diodes (LED) to illuminate the target surface and measures the intensity of each color reflected by the surface. Using the relative

Z991348—\$47

intensity of each color reflection, the *Color Sensor* calculates a color number that is returned to the *NXT* program. The color number calculated by the sensor is refreshed approximately 100 times per second. The *Color Sensor* connects to an *NXT* sensor port using a standard *NXT* connector cable and is housed in the *MINDSTORMS® Education* sensor housing. The *Color Sensor Block* is available for free download. Visit www.LEGOeducation.com/hitechnic for details. *NXT* connector cables are sold separately and are included in the *LEGO MINDSTORMS Education Base Set*.



- Make a robot that tracks to a certain direction no matter which way you try to turn it.
- Make a weather vane that displays the direction the wind is blowing.
- Make your own electronic compass by using the compass sensor in combination with the *NXT*'s programmable LCD screen to display a moving compass rose.

HITECHNIC COMPASS SENSOR FOR NXT

Tell your robots exactly where they should go with the new *NXT Compass Sensor* from HiTechnic. This digital compass measures Earth's magnetic field in order to provide accurate navigation to your *NXT* projects. Use the sensor in Read mode to calculate the current position or use it in Calibrate mode to compensate for externally generated magnetic field anomalies (like you find near motors or batteries). Either way, you'll find this sensor to be a great addition to your *NXT* robotics set!

Z991324—\$47



Gyro Sensor

- Build a robotic delivery system that will maintain a level platform regardless of whether it is traveling across a level area or going up or down hills.
- Use multiple Gyro sensors and create your own horizon indicator like you would see in an airplane.

HITECHNIC GYRO SENSOR FOR NXT

The *NXT Gyro Sensor* contains a single-axis gyroscopic sensor that detects rotation and returns a value representing the number of degrees per second of rotation, allowing the *NXT* to measure the additional dimension of rotation. The *Gyro Sensor* will let you accurately detect rotation for your *NXT* projects. The *NXT Gyro Sensor* returns the number of degrees per second of rotation as well as indicates the direction of rotation. Measure $\pm 360^\circ$ per second and build robots that can balance, swing, or perform other functions where measurement of rotation is essential.

Z991380—\$49



- Build a robot to compete in RoboCupJunior soccer!
- Build a smart robot that can find the best place to deploy the LEGO® Solar Panel to catch the sunlight.
- Create a Rescue Robot that homes in on an IR distress signal.

HITECHNIC IRSEEKER SENSOR FOR NXT

The *IRSeeker* has an array of infrared detectors that gives a 135-degree view and returns the direction and relative signal strength, indicating the location of the IR source. This can be used for robot games such as RoboCupJunior competitions to detect the direction of the infrared RoboCup soccer ball. Your *NXT* robot can easily find the soccer ball and keep it in sight. A winning combination when combined with the HiTechnic *NXT Compass Sensor*!

Z991379—\$39



VERNIER SENSOR ADAPTER FOR NXT

Increase the flexibility of your LEGO® MINDSTORMS® Education sets and software with Vernier sensors! For over 25 years, Vernier Software & Technology has produced world-class data collection solutions for teachers, and they have now partnered with LEGO Education to bring their technology to the *NXT* system. With this *Sensor Adapter*, any of the 40+ Vernier analog (BTA) sensors can be incorporated into *NXT* creations. Vernier sensors can be purchased at www.vernier.com, and the programming block can be downloaded for free at www.LEGOeducation.com/vernier.

Z991377—\$39

All HiTechnic sensors use a standard *NXT* cable and are housed in the MINDSTORMS® Education sensor housing; connector cables are sold separately. Sensor blocks are available for free download. Visit www.LEGOeducation.com/hitechnic for details.



LEGO education

www.LEGOeducation.com

NXT POSTER 1

17" x 23".

Z770326—\$5



LEGO education

www.LEGOeducation.com

NXT POSTER 2

17" x 23".

Z770327—\$5



LEGO education

www.LEGOeducation.com

NXT POSTER 5

17" x 23".

Z770330—\$5



LEGO education

www.LEGOeducation.com

NXT POSTER 4

17" x 23".

Z770329—\$5

EXCLUSIVE

NXT POSTER PACK

These NXT posters bring the world of LEGO® Education robotics to the classrooms, hallways, and labs of your school. Get all five posters in this one convenient pack, or buy them individually. Each poster measures 17" x 23".

Z991293—\$20



LEGO education

www.LEGOeducation.com

NXT POSTER 3

17" x 23".

Z770328—\$5

NXT Brick & Accessories

NXT INTELLIGENT BRICK

This state-of-the-art programmable intelligent brick serves as the brain for LEGO® Education robots. The brick features four input ports for taking in data and three output ports for distributing the data as commanded. Students transfer their programs from the computer to the brick using a USB cable or by using Bluetooth technology. With on-brick programming and a 32-bit microprocessor, this intelligent brick is ready for anything students might create! The brick is powered by six AA batteries or the 979798 *NXT Rechargeable Battery*, sold separately.

Z979841—\$135

POWERSQUID 5 OUTLET MULTIPLIER

A solution to the all-too-frequent problem of how to charge multiple *NXT Bricks*! With a standard power strip, there's no way to fit more than three chargers, which means you've got to find a place to plug in and store lots of power strips. With the *PowerSquid*, you can easily attach five chargers to the flexible outlets. The *PowerSquid* features outlets that can accommodate standard and transformer plugs, a lighted switch with a 15-amp circuit breaker, and a four-foot, 14-gauge grounded power cord. It's even got keyhole slots on the back to make wall mounting a breeze!

Z991316—\$19.99

NXT INTERACTIVE SERVO MOTOR

This motor uses a servo for precise control – within one degree. These intelligent motors automatically align the speed with which the robot moves, and each features a built-in rotation sensor.

Z979842—\$18

NXT CONNECTOR CABLE

Available in three lengths, these connector cables were designed specifically for use with the *NXT Brick*. Already included in the LEGO® MINDSTORMS® *Education Set* is one .2M cable, two .5M cables, and four .35M cables. Use these cable packs to supplement your cable selection.

Z991300 .2M (approx. 7.9") *NXT Connector Cable* (pkg of 3)—\$10

Z991301 .5M (approx. 19.7") *NXT Connector Cable* (pkg of 3)—\$10

Z991302 .35M (approx. 13.8") *NXT Connector Cable* (pkg of 3)—\$10



NXT BLUETOOTH DONGLE

The *NXT Brick* can receive programs two ways – through a Bluetooth signal or through a USB cable. If you choose to use Bluetooth but your computer isn't Bluetooth enabled, then this small *Dongle* is your answer. Plug it into a USB port on your computer, and you'll be able to communicate with the *NXT Brick* using Bluetooth technology.

Z979847—\$38

NXT RECHARGEABLE BATTERY

This rechargeable lithium battery is designed for use with the *NXT Intelligent Brick*. The battery features 1400 mAh of power and an A/C plug for direct power supply. The battery will charge from zero to full in a maximum of four hours. Use the 979833 *AC Adapter* to charge the battery, sold separately.

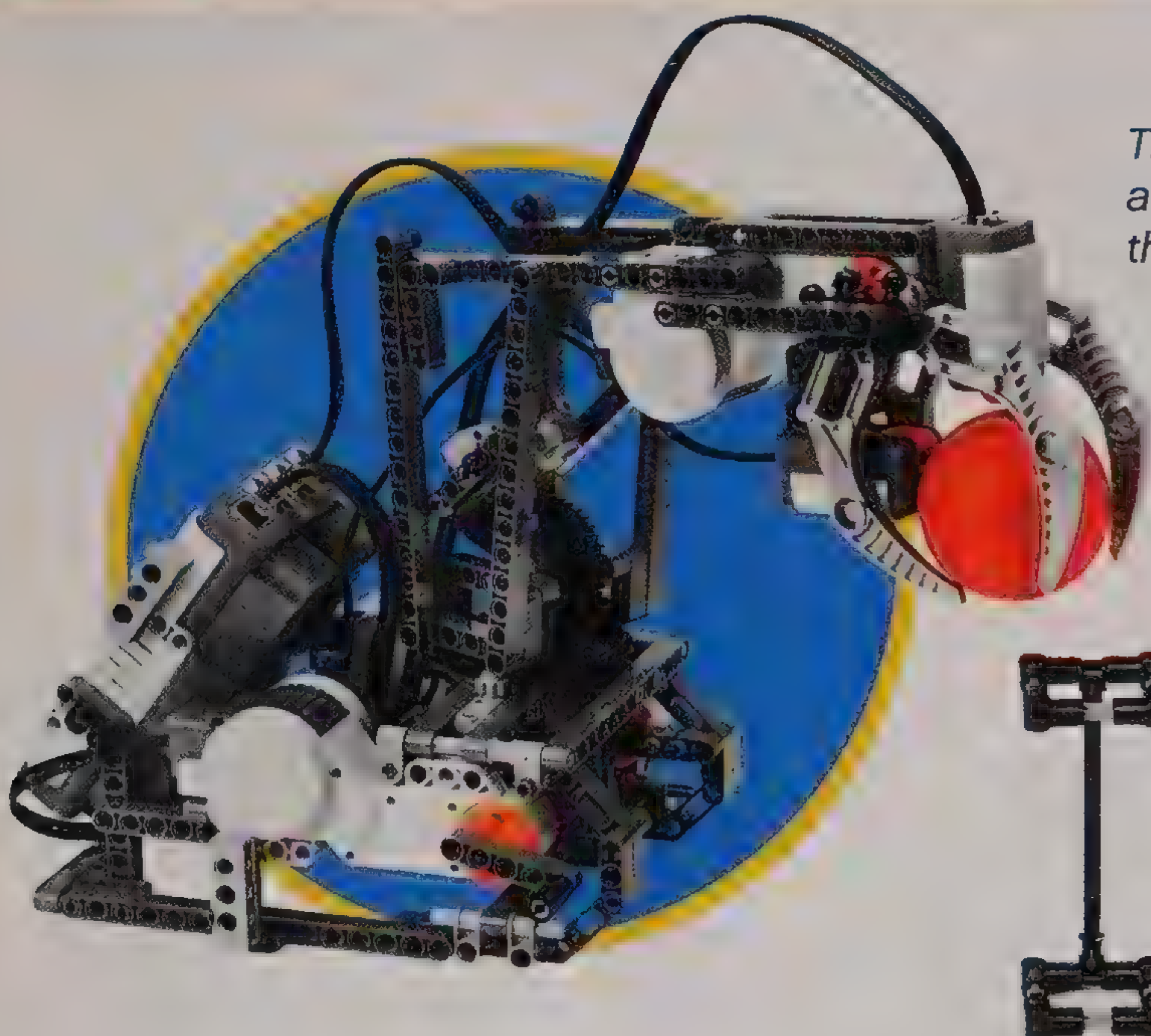
Z979798—\$50

NXT CONVERSION CABLE

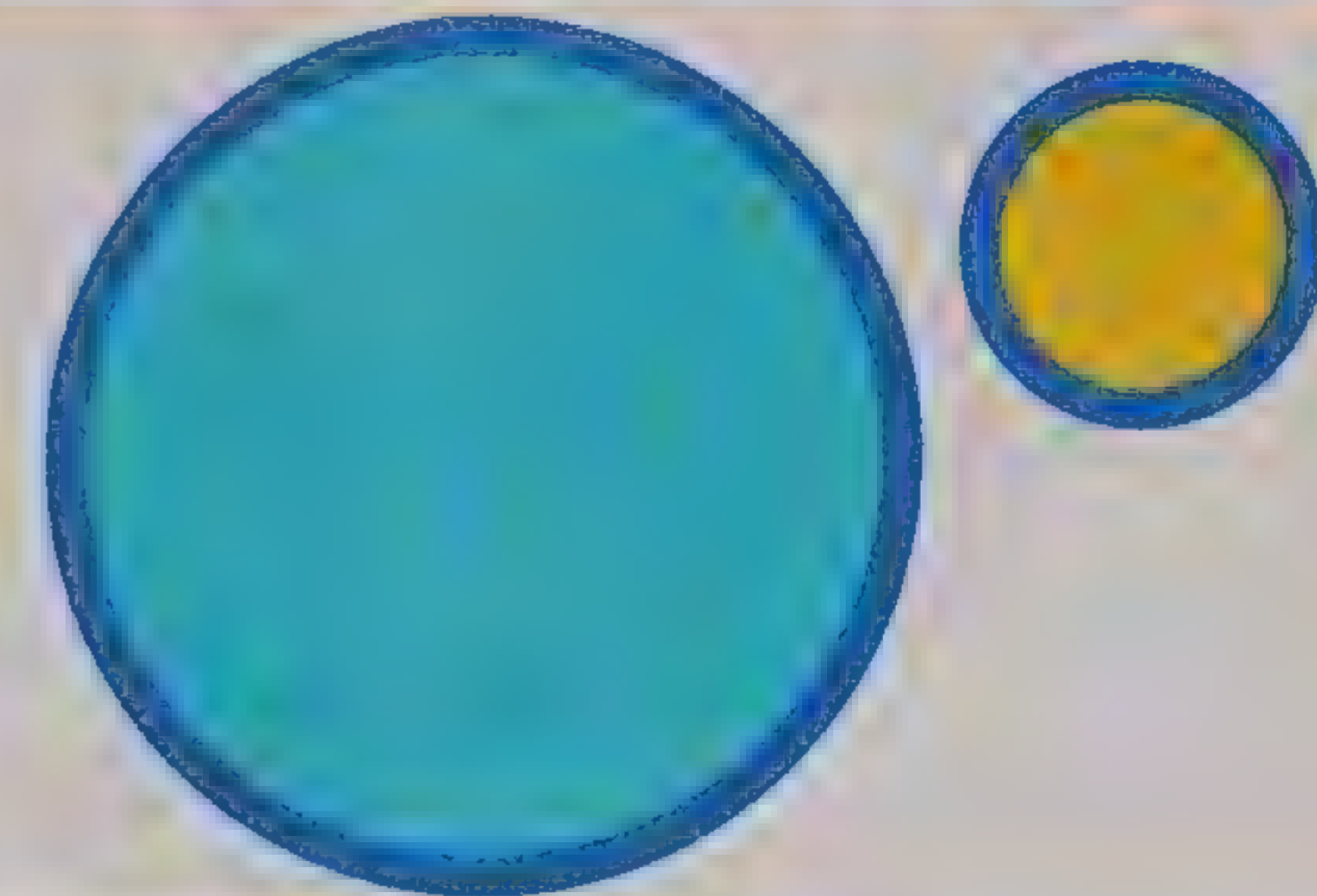
With this cable, you can use your existing *RCX* sensors and motors with the *NXT Brick*! Three of these cables are also included in the 979797 LEGO® MINDSTORMS® *Education Base Set*. *Temperature Sensor* sold separately.

Z770323 (pkg of 3)—\$10





This robot can be built with a combination of parts from the 979797 and 979648 sets.



EDUCATION RESOURCE SET

This versatile set includes 671 Technic building elements. The set was specifically designed to complement the LEGO® MINDSTORMS® Education Base Set, as well as the Science & Technology Set. Use this to build bigger and more complex robots and complete more challenging engineering projects. The set comes complete with a plastic storage bin and sorting trays.

Z979648 Education Resource Set—\$69

Z991422 Education Resource Set 2 Pack—\$133

Z991421 Education Resource Set 4 Pack—\$265

Z991420 Education Resource Set 6 Pack—\$395

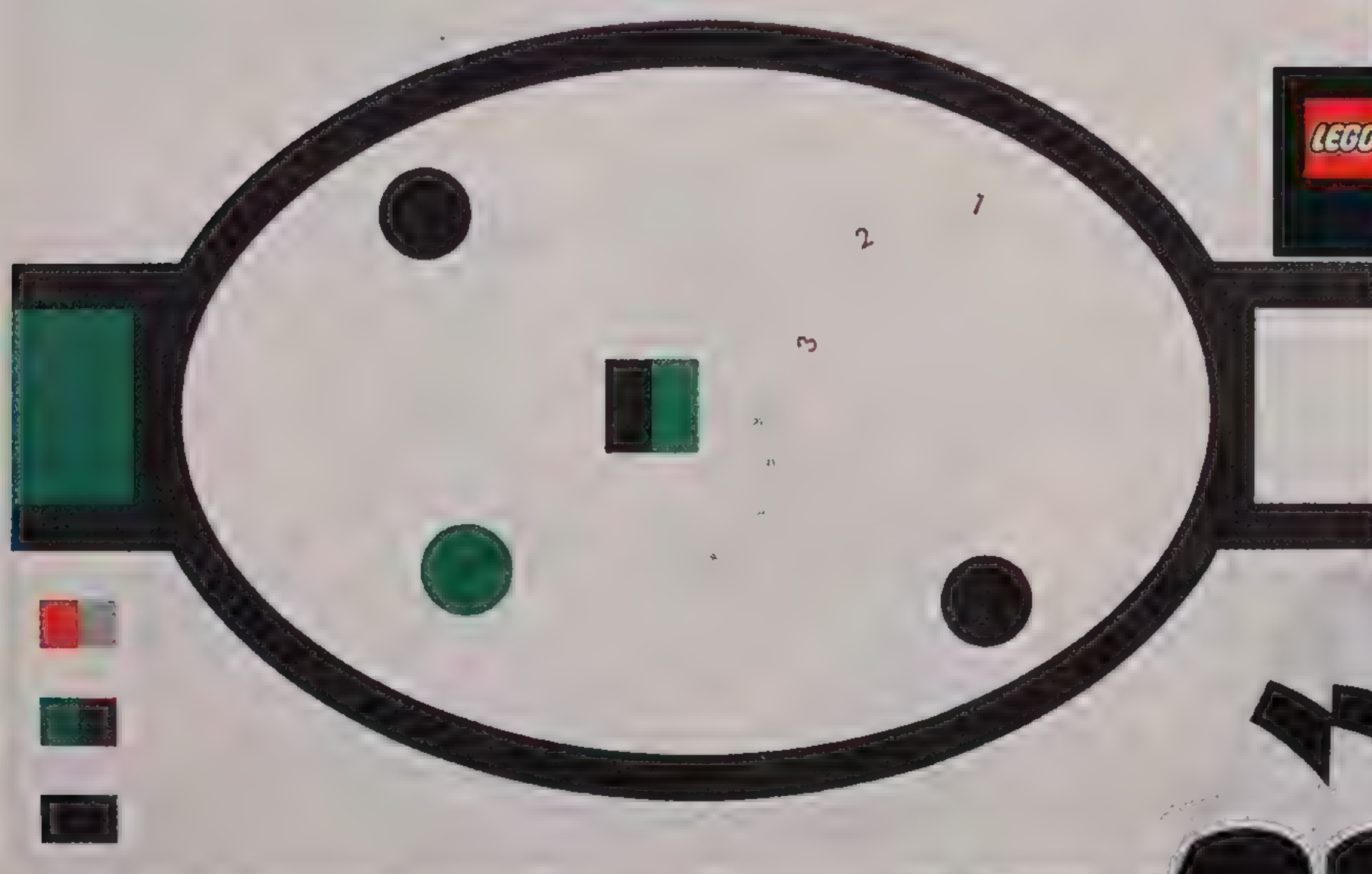
Z991419 Education Resource Set 8 Pack—\$525

Z991418 Education Resource Set 10 Pack—\$655

Z991417 Education Resource Set 12 Pack—\$775



LEGO® MINDSTORMS™ FOR SCHOOLS



ROBOTICS PROJECTS MAT **EXCLUSIVE**

Add this mat to your collection of robot activity surfaces. Though originally designed for use with the *Robotics Projects Activity Pack*, this mat will come in handy in a variety of robotics activities. Comes with five mats made of high quality paper. Each mat measures 35" x 25".

Z991247—\$13



EXCLUSIVE

ROBOLAB™ 2.5.4 SOFTWARE WITH TRAINING MISSIONS

Based on LabVIEW™ from National Instruments, the ROBOLAB™ software uses an icon-based, diagram-building environment to write programs that control your students' LEGO® robotics projects. ROBOLAB™ has progressive programming phases that allow the programming level to match the students' knowledge and skills.

PILOT is a basic environment where programs are built using a click-and-choose interface with a limited number of icons.

INVENTOR provides a more open-ended environment with scores of icons and limitless programming options.

INVESTIGATOR uses Pilot and Inventor programming to incorporate data collection into projects.

Students at any skill level can write, modify, and download programs that generate all types of data, enabling teachers to track progress and results. ROBOLAB™ also includes Training Missions, which are interactive tutorials that enable students to quickly learn how to program and log data. ROBOLAB™ is USB and Mac OS X compatible.

Features and Functionality in ROBOLAB™

- Training Missions
- Built-in, step-by-step progression for students of all ability levels
- Detailed online help system students can use themselves
- Locking system for files not intended for students
- Entire class can work with the software at the same time

Z900076 ROBOLAB™ 2.5.4 Software

with Training Missions—\$69

Z991100 ROBOLAB™ 2.5.4 Software

with Training Missions and Site License—\$295

Visit www.LEGOengineering.com for information on using ROBOLAB™ 2.9 with the NXT Brick.

Powered by
National Instruments
LabVIEW™



The curriculum support and software are developed in cooperation with Tufts University, College of Engineering, Boston.



ROBOLAB™ 2.5.4 SYSTEM REQUIREMENTS

Windows:

- 133 MHz PC (166 MHz recommended)
- Windows 98 operating system or later
- Min of 250 MB free hard drive space
- One serial or USB port
- RAM for Windows 98 or later – 128 MB (64 MB recommended)
- RAM for Windows XP or later – 128 MB (192 MB recommended)

Macintosh:

166 MHz Mac processor

- System 8 or later for serial transmitter
- Sys 9.0.4 or later for USB transmitter
- Min of 300 MB free hard drive space
- One serial or USB port
- RAM for System 8 or later – 128 MB (64 MB recommended)
- RAM for OSX – 128 MB (192 MB recommended)

ROBOLAB™ 2.9 SYSTEM REQUIREMENTS

When using software with the RCX:

Microsoft Windows system requirements:

- 133 MHz PC (166 MHz recommended)
- Windows 2000 operating system or later
- Minimum of 250 MB free hard drive space
- One serial or USB port
- 256 MB RAM

Macintosh system requirements:

- 166 MHz Mac processor
- OS X operating system or later
- Minimum of 300 MB free hard drive space
- One USB port
- RAM for OSX – 128 MB (192 MB recommended)

When using software with the NXT:

Microsoft Windows system requirements:

- Windows XP operating system
- Pentium processor, 800 MHz (1.5 GHz or better recommended)
- 256 MB RAM minimum (512 MB recommended)
- Up to 300 MB of available hard-disk space
- One available USB port

Macintosh system requirements:

- Apple Mac OS X v. 10.3.9 or 10.4
- PowerPC G3, G4, G5 processor, 600 MHz minimum (1.3 GHz or better recommended)
- 256 MB RAM minimum (512 MB recommended)
- Up to 300 MB of available hard disk space
- One available USB port

ROBOLAB™ 2.9 UPGRADE

The latest upgrade to ROBOLAB™ is designed to support RCX users and ease the transition to the NXT system. This upgrade enables you to program the NXT Brick with ROBOLAB™. ROBOLAB™ 2.9 features new firmware to allow for faster processing, more motor speeds, floating point math, improved debugging and programming functions, and more. ROBOLAB™ users ready to get started with the NXT technology will be able to work in a familiar environment to create programs for the NXT Brick – from basic Pilot to high-end Inventor, and data logging programs. Users can therefore continue to build up their educational robotics resources by investing in the new LEGO® MINDSTORMS® Education hardware while continuing to use a familiar programming environment.

Previous versions of ROBOLAB™ 2.0 or higher are required for upgrade compatibility.

Z900069 ROBOLAB™ 2.9 Upgrade (single copy)—\$49

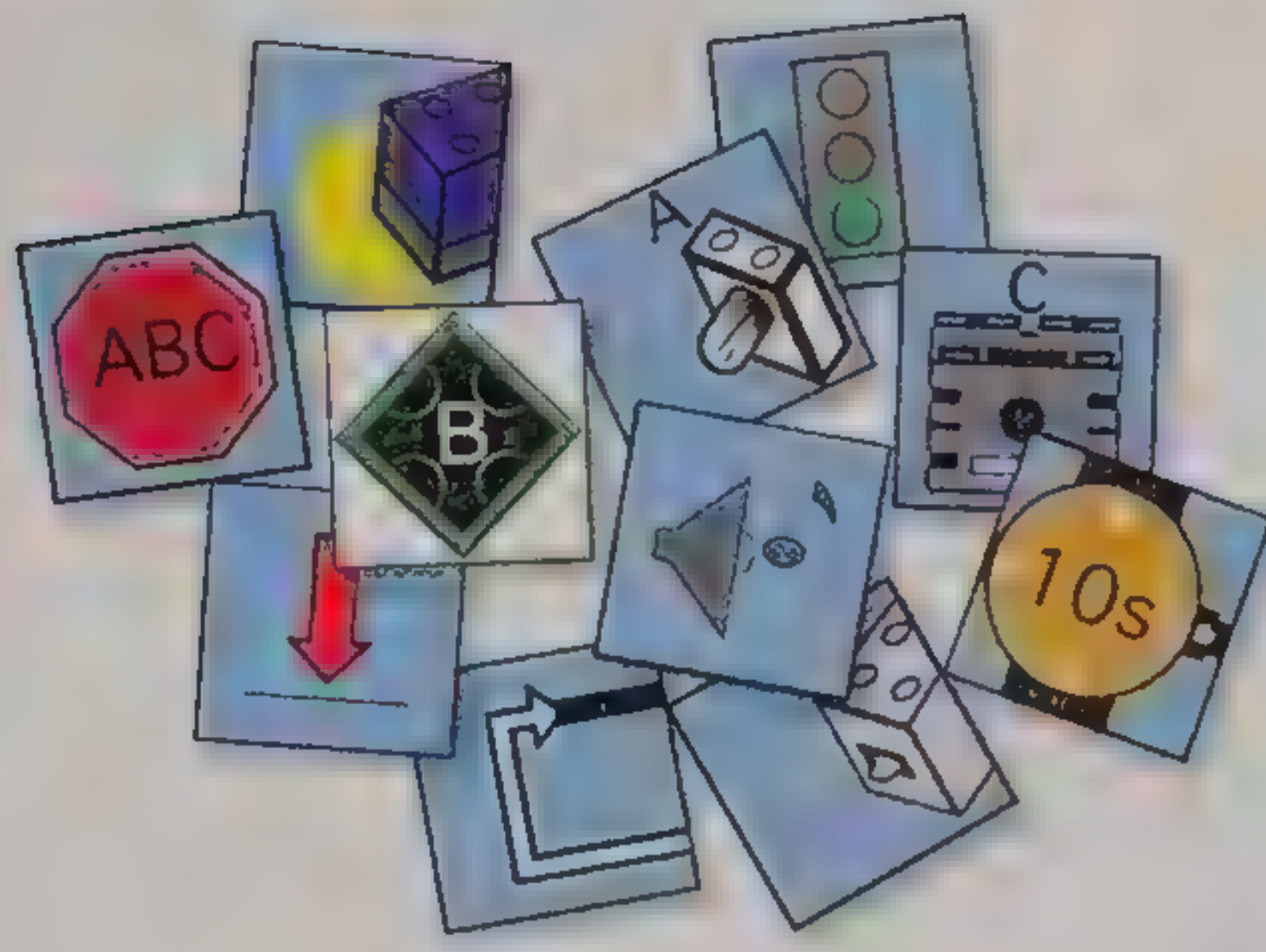
Z991303 ROBOLAB™ 2.9 Upgrade (site license)—\$149

EXCLUSIVE

ROBOLAB™ ICON MAGNETS

Use your magnetic blackboard and these full-color magnets as a ROBOLAB™ teaching tool, or let your students design their programs before moving to the computers. All icons through Inventor Level II are represented, 51 unique icons in all.

Z926875 1" ROBOLAB™ Icon Magnets (255 magnets)—\$21
Z926874 2" ROBOLAB™ Icon Magnets (102 magnets)—\$24



MAGNETIC BOARD

Magnets not included.

Your students can use this 11" x 14" magnetic board with the ROBOLAB™ Icon Magnets to design programs at their desks before moving to the computer. Ideal for use in a classroom with a limited number of computers.

Z991120—\$15

ROBOLAB™ ICON RUBBER STAMPS SET

This set of eight stamps is intended for use by students at the Pilot level of programming within ROBOLAB™. Included are stamps for start/stop commands, as well as outputs and wait-for commands. The set also includes a black ink pad. All your students need is a blank sheet of paper, and they can begin designing programs for their LEGO® Education robots!

Z991200—\$25



ENGINEERING WITH LEGO® BRICKS AND ROBOLAB™

Second Edition
The unofficial guide to ROBOLAB™



ERIC WANG

In consultation with
Chris Rogers



See page 12 for the 3rd Edition, which covers ROBOLAB™ 2.9 and the NXT Intelligent Brick.

ENGINEERING WITH LEGO® BRICKS AND ROBOLAB™

This revised and expanded 2nd edition is the ultimate guide to LEGO® Education's ROBOLAB™ software. New features like advanced tasks and containers, the Vision Center, and LASM are included in this edition. The book includes introductions to the RCX Programmable Brick, the "brain" of your robotics creations, as well as a variety of other hardware options available from LEGO Education. The book includes robot building tips and introductions to various robot components: sensors, wheels, gears, grippers, and more! The book is full of design challenges of increasing difficulty, each of which defines a specific task that must be completed. Your students can stretch their creative legs, as all of the challenges have multiple solutions. Paperback, 323 pages.

Level: Elementary-High School

Z991164—\$50

Software can be loaded on every computer in a single classroom.



ROBOLAB™ VIDEO TRAINER SOFTWARE AND CLASSROOM LICENSE

From the Robotics Academy at Carnegie Mellon University, the ROBOLAB™ Video Trainer CD-ROM is an excellent way for teachers and students alike to learn how to program with LEGO® Education's ROBOLAB™ software. With more than 40 short videos, easy to understand step-by-step instructions, and support resources, the ROBOLAB™ Video Trainer enables learners to follow along at their own pace. Each video is accompanied by an exercise in ROBOLAB™ that tests learners' abilities as they progress through the lessons. In addition to ROBOLAB™ training exercises, the CD-ROM includes slide shows with step-by-step instructions that show how to build the simple trainer robots used in the lessons. And, since the activities are self-paced, users can pause, rewind, and fast-forward through chapters as needed. A copy of ROBOLAB™ 2.5 or higher is needed to complete the lessons, as well as a Team Challenge building set. System requirements:

- Windows 98 or later, or Macintosh OS 10.0 or later
- Internet Explorer 5.0 or later, or Netscape 6.0 or later
- Macromedia Flash Player (installer included on CD-ROM)

Z991193—\$100



**SOFTWARE
SOLD SEPARATELY!**



TEAM CHALLENGE SET WITH USB CABLE **EXCLUSIVE**

This is the core set used with many of the LEGO® MINDSTORMS® for Schools activity packs. The set enables groups of students to simulate real-life robotics and robotic systems. Each member of the group assumes a role and works with the others to solve assignments. Hundreds of elements come with the set, including parts to build the ROBOLAB™ 2.5.4 with Training Missions models and a tacho wheel that – when combined with a light sensor – functions as a rotation sensor.

The Team Challenge Set contains 828 elements, including:

- 1 RCX Brick
- 2 Light sensors
- 2 Motors
- Tacho Wheel
- 2 Touch Sensors
- Transparent gear block
- 1 Infrared Transmitter with USB Cable

Colors of LEGO elements may change.

Z979794—\$219



ROBO TECHNOLOGY SET WITH USB CABLE **EXCLUSIVE**

The ROBO Technology Set is a great way to introduce students to robotics concepts through teamwork and problem-solving challenges. It's smaller than our previous sets and for good reason. Each of the parts included in this set has a place in the comprehensive storage unit, and many of the parts are replaceable.

Don't judge this set by its size! You will be amazed by the number and variety of activities that can be accomplished with this set. Add in your students' active imaginations, and the possibilities are virtually limitless.

The ROBO Technology Set contains 215 elements, including:

- 1 RCX Programmable Brick
- 1 Infrared Transmitter with USB Cable
- 2 Gear motors
- 2 Touch Sensors
- 1 Light Sensor
- 1 Lamp
- 1 Storage box for built models
- Bricks, wires, gears, axles, plates, and much more!

Colors of LEGO® elements may change.

Z979786—\$169



Value Packs

Don't have 24 students in your class? Take advantage of these smaller value packs to outfit your classroom with LEGO® Education robotics sets and ROBOLAB™ software.

TEAM CHALLENGE AND ROBOLAB™ (PKG OF 8)

Includes eight *Team Challenge* Sets and ROBOLAB™ 2.5.4 Software and Site License.

Z991236—\$1,985

TEAM CHALLENGE AND ROBOLAB™ (PKG OF 4)

Includes four *Team Challenge* Sets and ROBOLAB™ 2.5.4 Software and Site License.

Z991238—\$1,135

Value Packs

ROBO TECHNOLOGY AND ROBOLAB™ (PKG OF 8)

Includes eight *Robo Technology* Sets and ROBOLAB™ 2.5.4 Software and Site License.

Z991237—\$1,600

ROBO TECHNOLOGY AND ROBOLAB™ (PKG OF 4)

Includes four *Robo Technology* Sets and ROBOLAB™ 2.5.4 Software and Site License.

Z991239—\$940



TEAM CHALLENGE - GETTING STARTED PACKAGE

A great general-purpose starting point for any robotics program, the *Team Challenge GS Package* includes enough sets for 24 students (working in pairs), plus the ROBOLAB™ 2.5.4 Software and Site License. Use this GS package with nearly any activity pack or book in our catalog. GS package includes:

- Z979794 Team Challenge Set with USB Cable
(12 sets included in GS package).....\$219
- Z991100 ROBOLAB™ 2.5.4 with Training Missions Software and Site License \$295

Z991234 Team Challenge - Getting Started Package \$2,835

A \$2,923 value!

Upgrade these packs to
ROBOLAB™ 2.9! See page 22.



ROBO TECHNOLOGY - GETTING STARTED PACKAGE

This is an excellent start-up pack, enough for a class of 24 students working in pairs. Use this GS package with many of the activities and books in our catalog. GS package includes:

- Z979786 Robo Technology Set with USB Cable
(12 sets included in GS package).....\$169
- Z991100 ROBOLAB™ 2.5.4 with Training Missions Software and Site License \$295

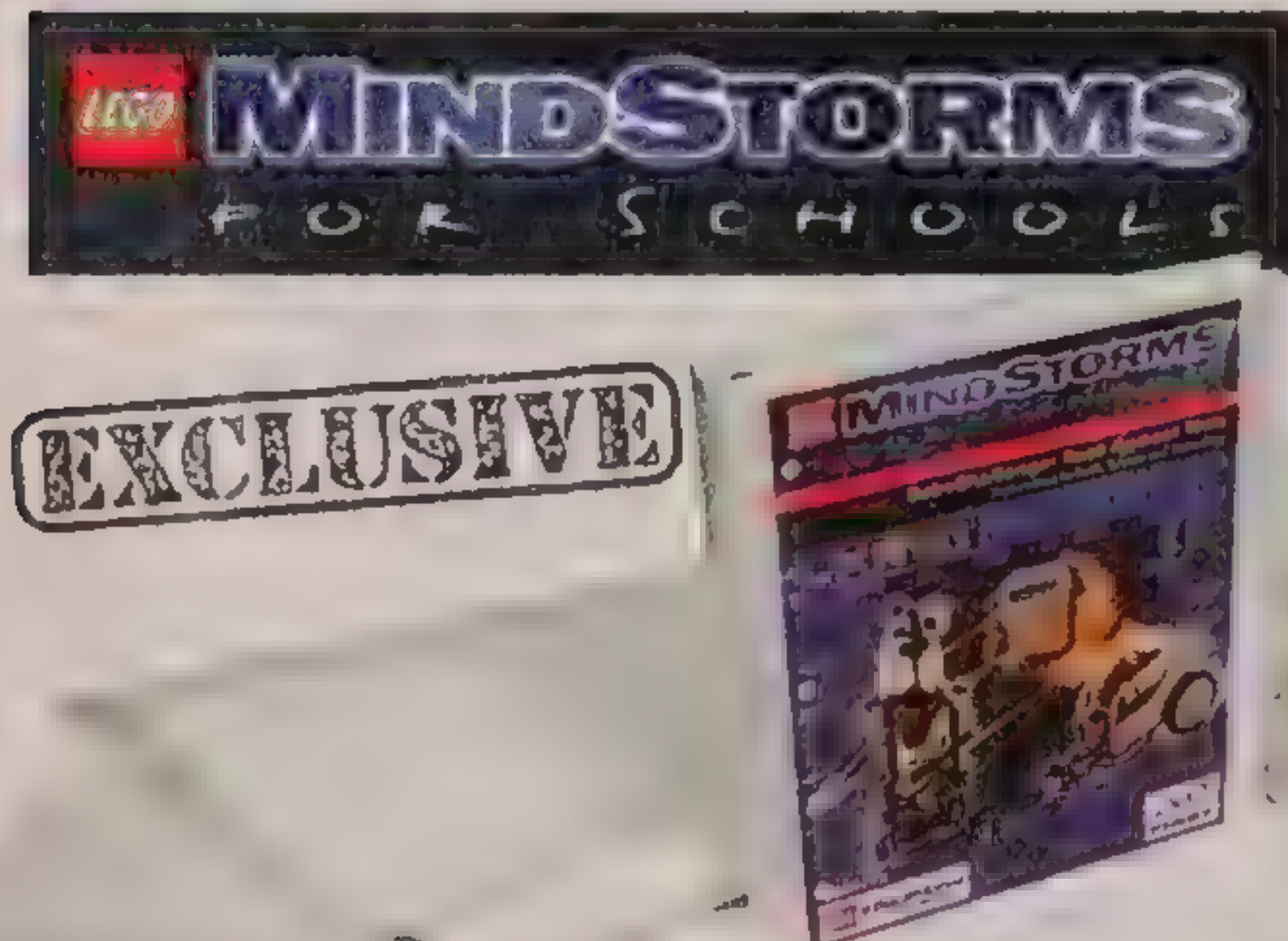
Z991235 Robo Technology - Getting Started Package \$2,255

A \$2,323 value!



ROBOTICS PROJECTS ACTIVITY PACK

Designed to introduce students to programming, logical thinking, teamwork, and project-based learning, the *Robotics Projects Activity Pack* is great for your more advanced robotics students. The eight main activity topics provide approximately 18 lessons on training missions, data logging with the Investigator level of ROBOLAB™, and programming using containers, subroutines, and timers. The activity pack includes black-and-white copymasters of all student worksheets, as well as full-color teacher notes. In addition, the pack includes a CD-ROM with video clips of various real-world robots. The pack is designed for use with the *ROBO Technology Set* or the *Team Challenge Set*. **Z900067—\$73**



ROBOCHALLENGE: RACE AGAINST TIME TEACHER PACK

The *RoboChallenge: Race Against Time Teacher Pack* is an excellent way to involve middle and high school students in challenging, hands-on, standards-based activities designed to instill teamwork and problem-solving skills. The highly motivating *Race Against Time* projects integrate math, science, and technology principles while leading students through three main challenges: Dance to the Music, RoboHoops, and Speed Racing. A fourth competitive challenge is included, as well as extension activities for each of the missions.

Designed for use with the *Team Challenge Set* and the ROBOLAB™ 2.5.4 Software with Training Missions, the *Race Against Time Teacher Pack* includes the following:

- Comprehensive teacher's guide
- Student activities book
- Print-ready CD-ROM that includes electronic versions of the teacher's guide, student activities book, and all relevant print materials
- *Race Against Time Mat*

Z991146—\$104



ALIEN ENCOUNTER ACTIVITY PACK

Alien Encounter leads your elementary and lower middle school students through the exciting adventures of two LEGO® astronauts who have crash-landed on an alien planet and must learn to communicate with aliens! Using a colorful story line format, the two astronauts guide your students through activities that help them grasp how computer technology, mathematics, and science are used to help resolve difficult challenges. Students will create and use tools to measure distance and time, collect and interpret data, calculate speed and area, work in groups to solve challenges, and much more. Each of the three themes is introduced in a comic book style with interactions between the astronauts as they discuss the challenge at hand. Students work in pairs of two.

Designed for use with the *ROBO Technology Set* and the ROBOLAB™ 2.5.4 Software with Training Missions, *Alien Encounter* includes:

- Teacher's guide with sample programming solutions and extension ideas
- Student Activity Book that outlines the three challenges: RoboRover, RoboGrabber, and RoboAlien
- Print-ready CD-ROM containing electronic copies of the teacher's guide, student activity book, and sample ROBOLAB™ programs
- CD-ROM with video clips of machines related to *Alien Encounter* activities, including robots, machines, and programmable devices

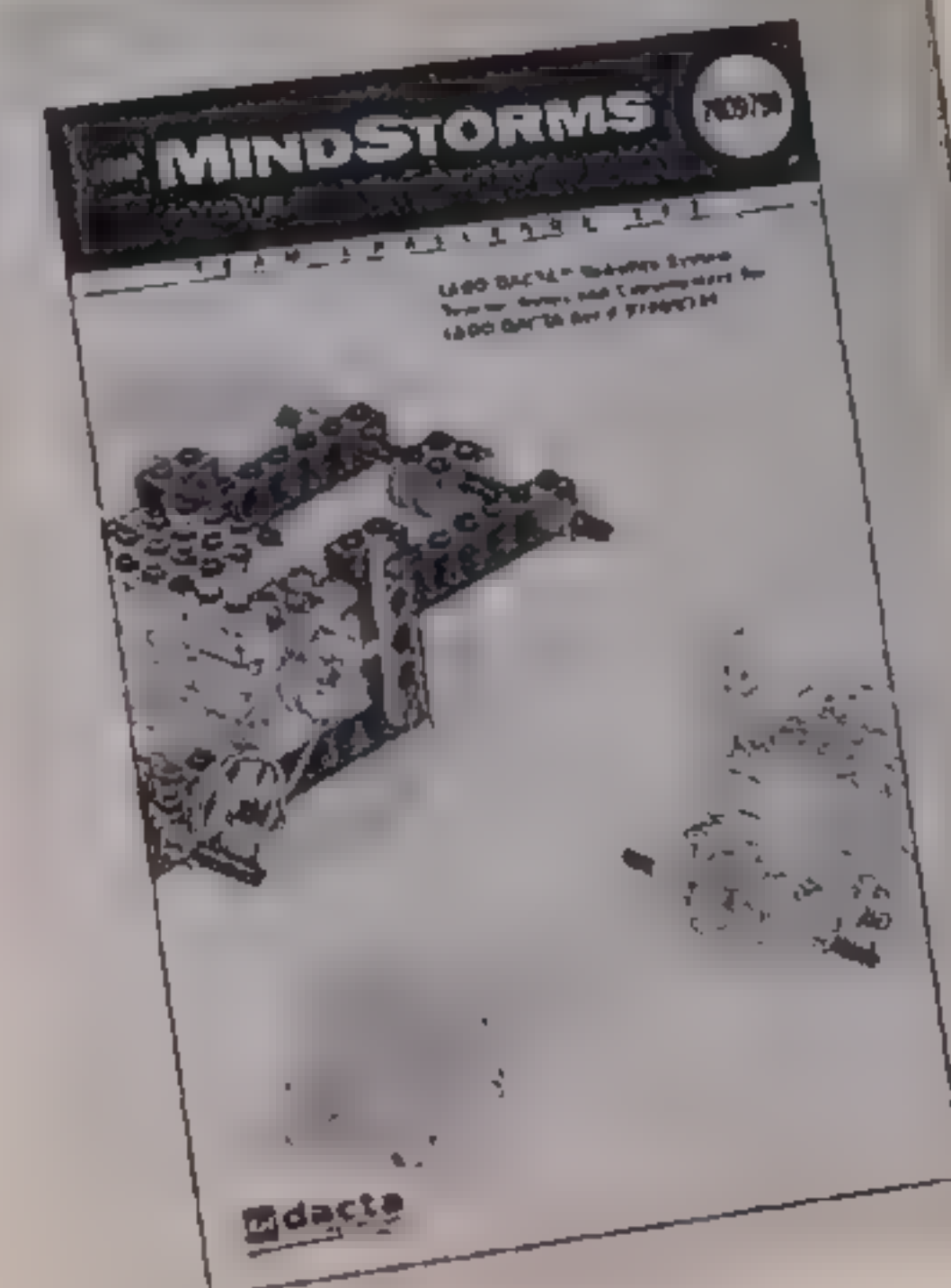
Z909789—\$57

TEAM CHALLENGE ACTIVITY PACK

The activity pack includes specifications for a minimum of 10 challenges. There is one main challenge (the Can-Do contest) that is used to teach the members of a team of four students the process of organizing, selecting their roles, building, programming, and testing their robot within the given time frame. After they are familiar with the process, they can apply their knowledge to a number of other challenges described.

Z909790—\$34

EXCLUSIVE

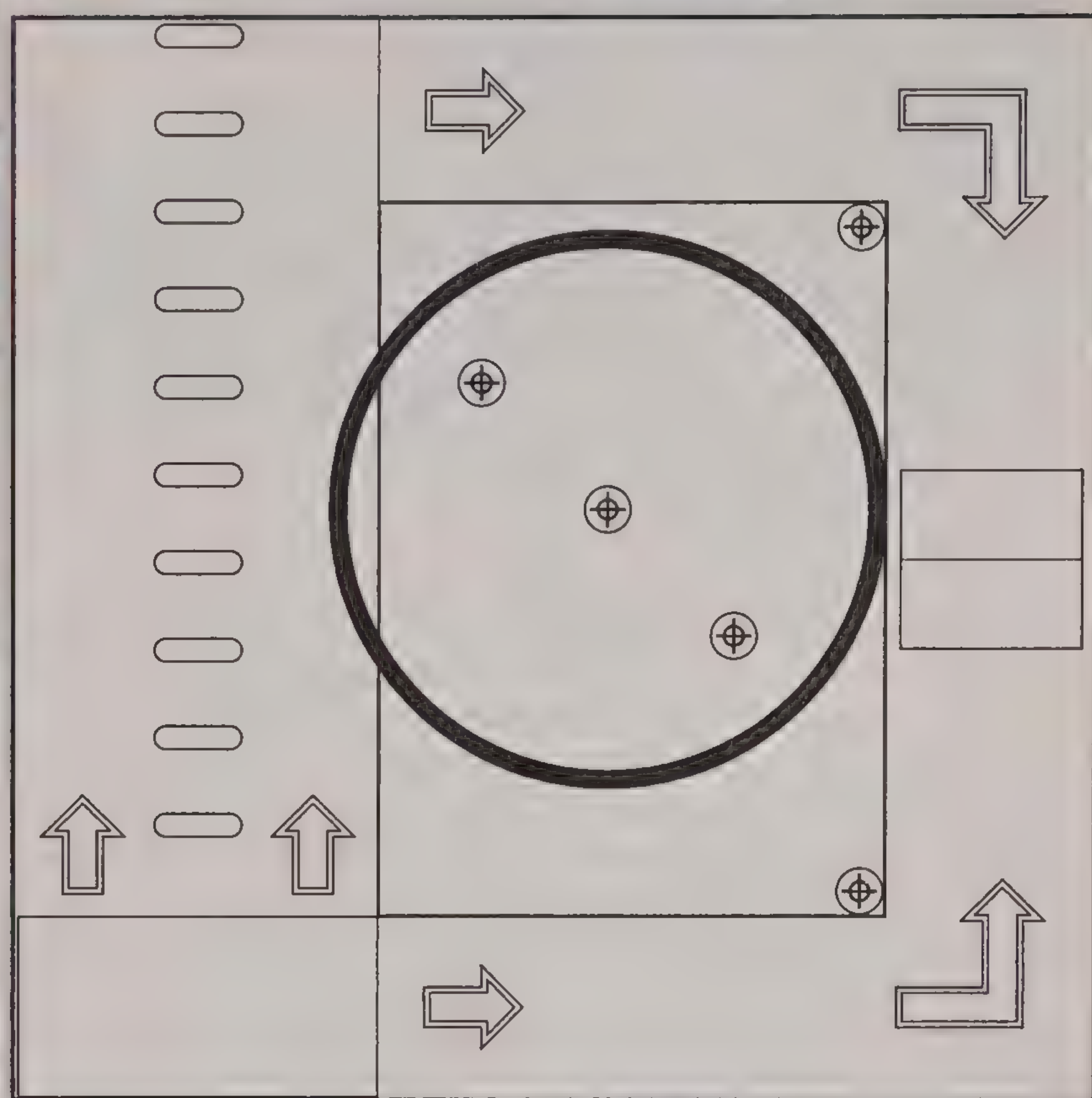




ALIEN ENCOUNTER TERRAIN MATS **EXCLUSIVE**

Originally designed for use with the *Alien Encounter Activity Pack*, these mats can take on many applications in your robotics classroom. Mats are made of high-quality paper with full-color illustration and provide a great activity surface for a variety of robots. Comes with five mats. Each mat measures 35" x 25".

Z991126—\$13



RACE AGAINST TIME MAT **EXCLUSIVE**

The *Race Against Time Mat* is the playing field for the challenges included in the *Race Against Time Activity Pack*, but its uses are limitless. Create robotic activities and challenges of your own using the mat's preprinted lines and arrows. The mat is made of durable vinyl and measures 4' x 4'.

Z990974—\$35



ROBOTICS PROJECTS MAT **EXCLUSIVE**

Add this mat to your collection of robot activity surfaces. Though originally designed for use with the *Robotics Projects Activity Pack*, this mat will come in handy in a variety of robotics activities. Comes with five mats. Each mat measures 35" x 25".

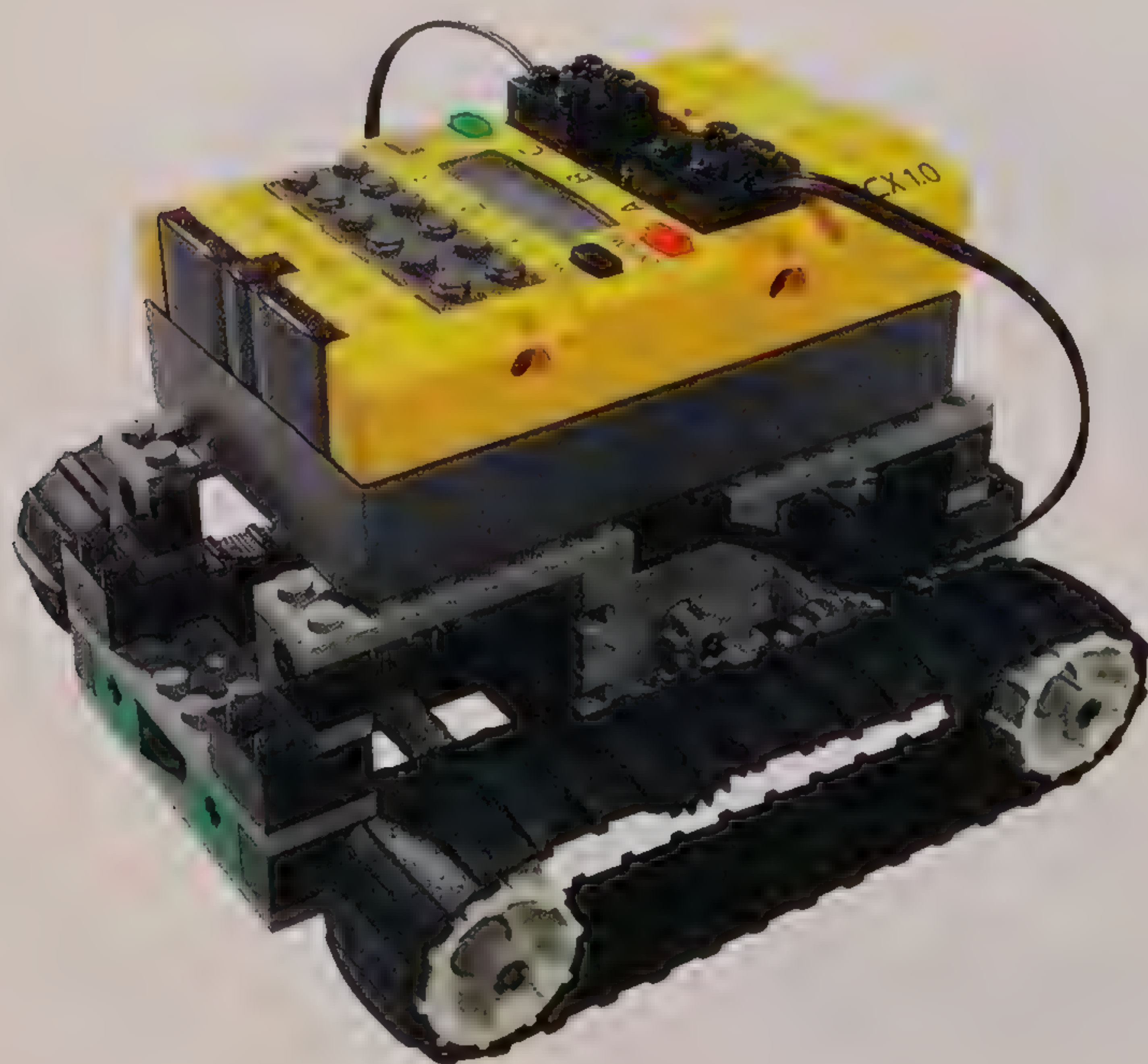
Z991247—\$13



ROBOCHALLENGE: EXPLORATION MARS TEACHER PACK

Take your students on the field trip of their lives – to the Red Planet! LEGO® Education and FIRST (For Inspiration and Recognition of Science and Technology) have teamed to introduce the second in the RoboChallenge series: *Exploration Mars*. This challenge takes teams of four students through 60 hours of activities and curriculum contained in two main challenges, each of which fully integrates math, science, and technology into exciting, inquiry-based activities. They build an obstacle field out of LEGO bricks, all on a 4' x 8' vinyl mat that mimics the surface of the Red Planet. Students collect and analyze data; navigate obstacles that they've built out of LEGO bricks; conduct meteorologic, hydrologic, and geologic experiments; and more! For use with the *Team Challenge Set* and ROBO-LAB™ software, this Teacher Pack includes all of the curriculum materials needed for a classroom full of students to complete *RoboChallenge: Exploration Mars* – a printed Activity Pack, a Mars Field Set (to build the obstacles), the *Exploration Mars* mat, and a set of 2" ROBO-LAB™ Icon Magnets to use as a teaching tool.

Z909760—\$239



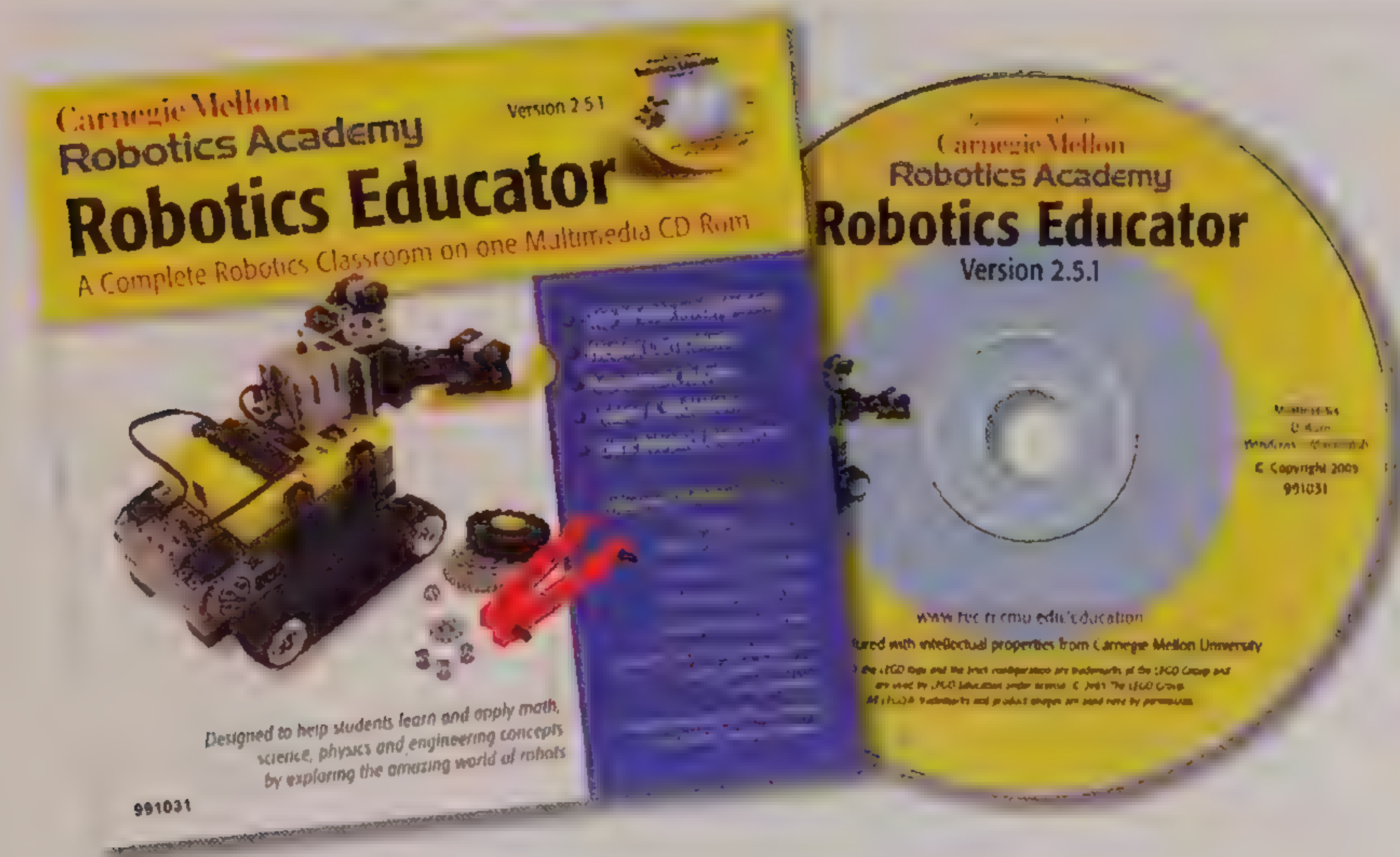
SCIENCE INVESTIGATOR SOFTWARE

The latest in the CD-based activities from Carnegie Mellon University Robotics Academy, *Science Investigator* combines the thrill of science discovery and the power of data logging with the appeal of LEGO® Education robotics. *Science Investigator* features seven physical science units with 14 investigations, plus dozens of supporting pages, animations, and videos. An introductory unit takes new users step-by-step through a tutorial experiment, and a separate Teacher CD brimming with notes and answer keys for every major experiment, challenge, and activity is included. Each stand-alone physical science unit within *Science Investigator* includes:

- Necessary background information for physical science concepts
- Videos, illustrations, and on-screen demonstrations to explain concepts quickly and effectively
- Guided step-by-step investigations and classroom experiments conducted by students
- Analysis and calculation questions designed to stimulate analytical thinking about subject matter in context
- Open-ended challenges to assess understanding in applied context
- Printable worksheets

Science Investigator is designed for use with the *Team Challenge Set* and ROBO-LAB™ and provides everything needed to bring fun and educational inquiry-based science into your classroom. Whether you're a beginner, already experienced with ROBO-LAB™ and LEGO robotics, or a veteran science educator, *Science Investigator* has what you need to motivate your students. Software can be installed on all computers in a single classroom.

Z991250—\$225



ROBOTICS EDUCATOR SOFTWARE

Designed by teachers for teachers at Carnegie Mellon University's National Robotics Engineering Consortium, this multimedia resource uses the motivational advantages of robotics to teach math, science, and technology concepts. A complete robotics curriculum, *Robotics Educator* includes lesson plans for one, three, six, and nine weeks that use the ROBOLAB™ software and the *Team Challenge* building sets. Great for students and teachers alike, *Robotics Educator* is aligned with standards developed by the American Association for the Advancement of Science, the National Council of Teachers of Mathematics, and the International Technology Education Association. *Robotics Educator* includes:

- Lessons in measurement, conversion of units, ratios and proportions, rotational torque, speed and distance, gears, and more!
- Clear, step-by-step investigations
- Student worksheets
- Rubrics for assessment
- Curricula for one, three, six, and nine weeks
- Videos and slide shows
- 500 megabytes of robotics resources

Software can be installed on all computers in a single classroom.

Z991135—\$225

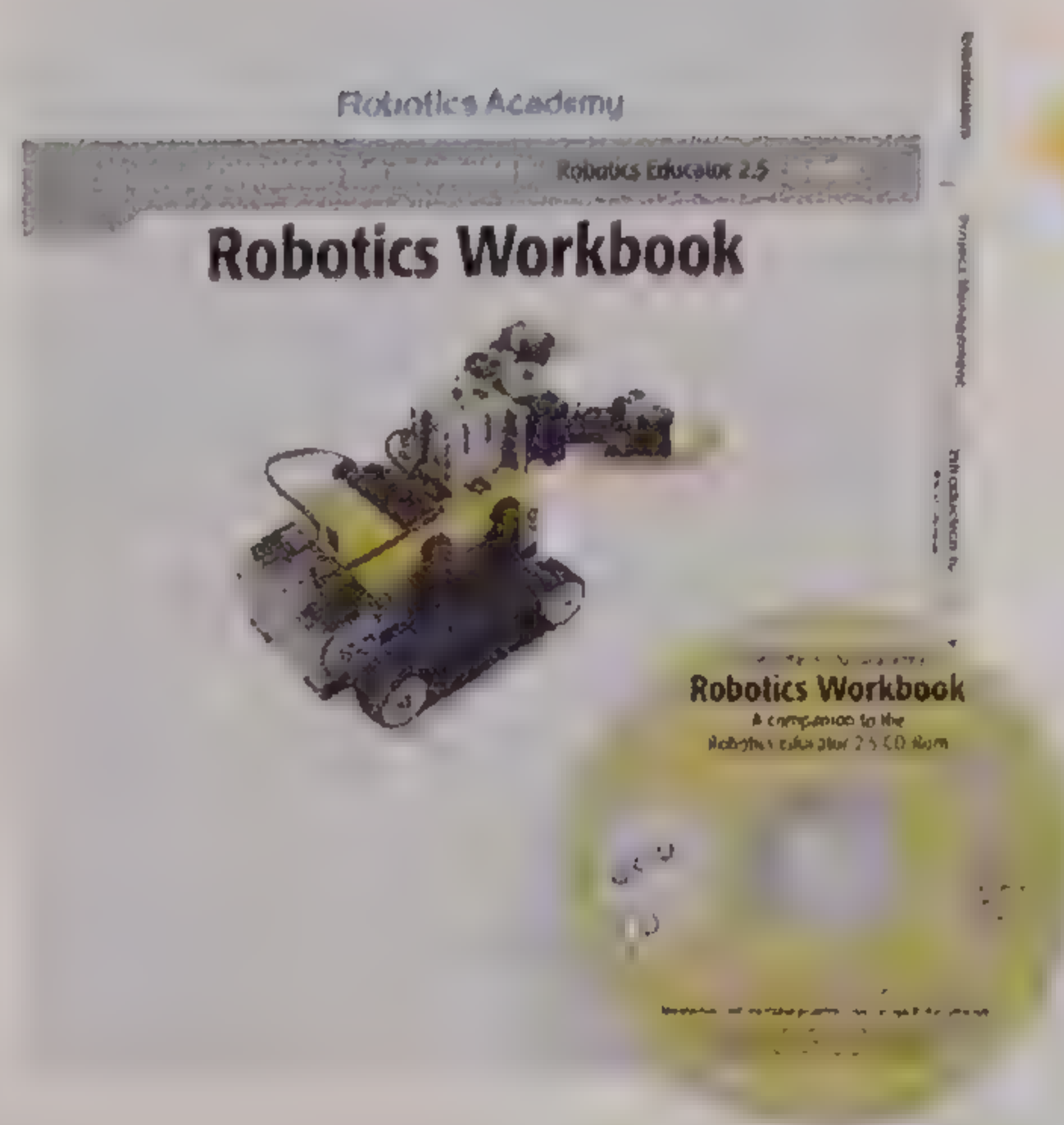
ROBOTICS WORKBOOK

Written as a companion to *Robotics Educator*, the *Robotics Workbook* is a 244-page printed workbook designed to help students master math, science, and engineering concepts using LEGO® Education robotics. Technical sketching, project management, and a multitude of other topics are covered. A digital version of the *Robotics Workbook* is included on CD-ROM so you can print more workbook

pages as needed. Pages are collated, three-hole punched, and unbound. Tabbed cardstock dividers are included, as well as a full-color cover.

Level: Beginner-Intermediate

Z991212—\$100



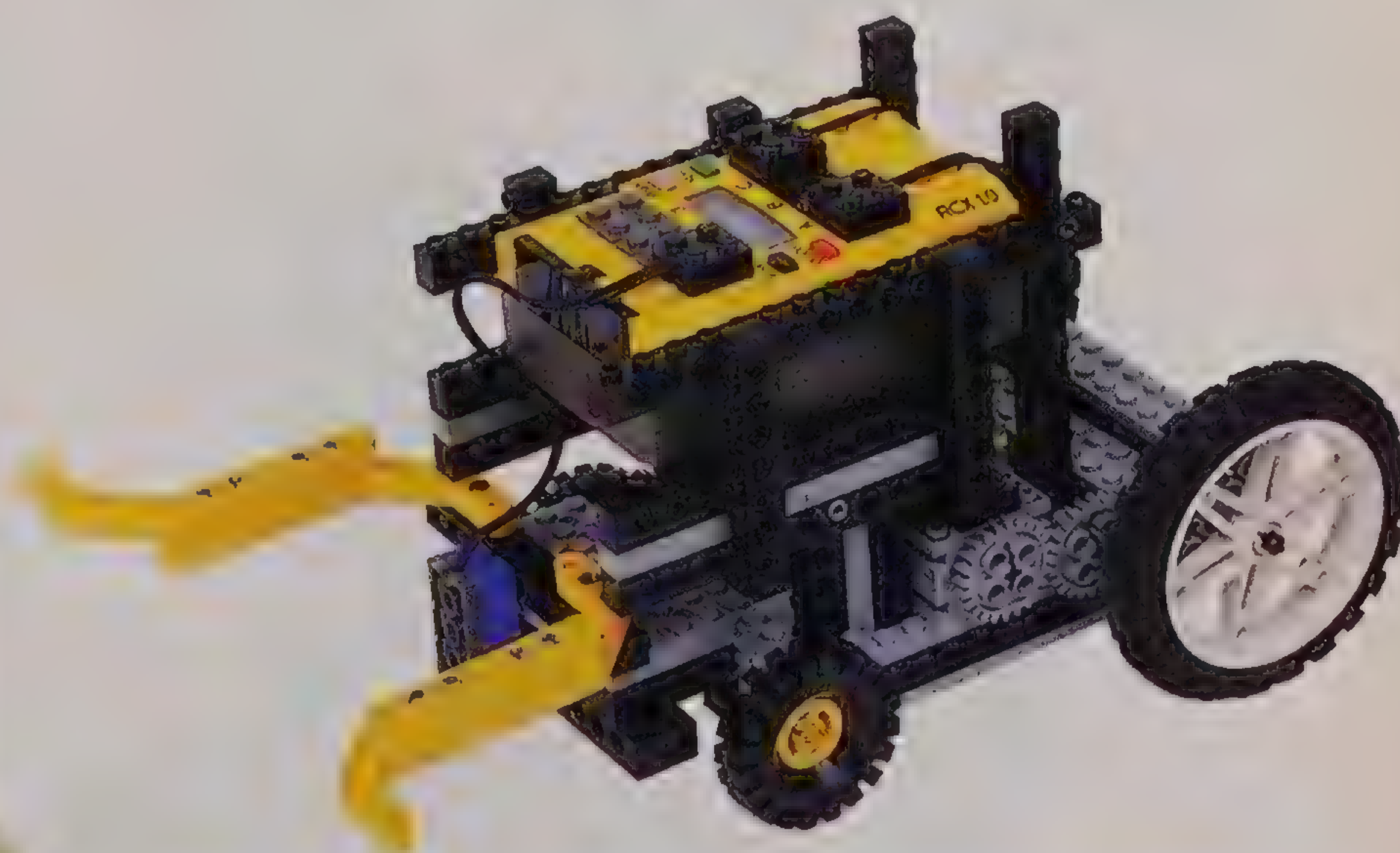
ROBOTICS EXPLORER SERIES ONE SOFTWARE

This open-ended, inquiry-based, problem-solving software includes robotic activities appropriate for students of all levels. The CD includes 24 theme-based challenges ranging from moderate to extreme and can be used alone or as a complement to the challenges in *Robotics Educator*. As all educators know, student abilities vary – hence this product was created to engage and challenge a wide range of aptitudes. It's also a great tool to use in preparation for robotics competitions or with robotics clubs. Slide shows, videos, and info-packed helper links are one click away. *Robotics Explorer Series One* includes:

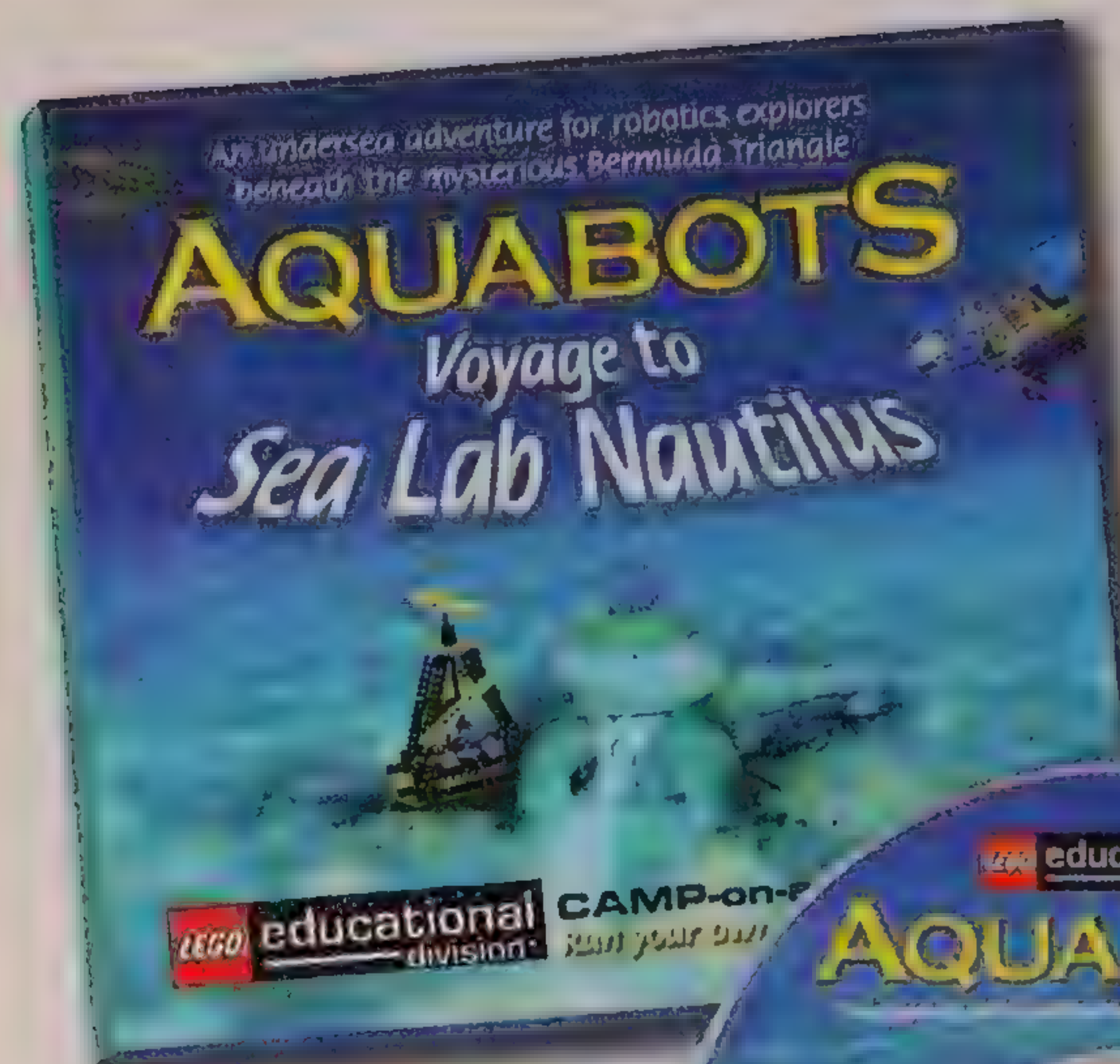
- Sequences robotics challenges
- Step-by-step slide shows
- Teamwork and problem-solving activities
- Robot building instructions
- ROBOLAB™ tutorials

Software can be installed on all computers in a single classroom.

Z991033—\$100



To experiment with a demo of *Robotics Educator* and preview the curriculum, visit www-education.rec.ri.cmu.edu



CAMP-ON-A-DISK: AQUABOTS SOFTWARE **EXCLUSIVE**

Aquabots takes your campers beneath the Bermuda Triangle on the undersea adventure of their lives! For use with the *Team Challenge Set* and ROBOLAB™ software, campers will spend a week building and programming robots. They'll build robots to explore the ocean floor, save a giant squid, connect an air pipeline, and more. The CD-ROM contains all of the information and curriculum to operate an independent robotics camp, including a camp itinerary, forms, posters, robot building instructions, animated slide shows, extensive challenges, robot building and programming assistance, and more!

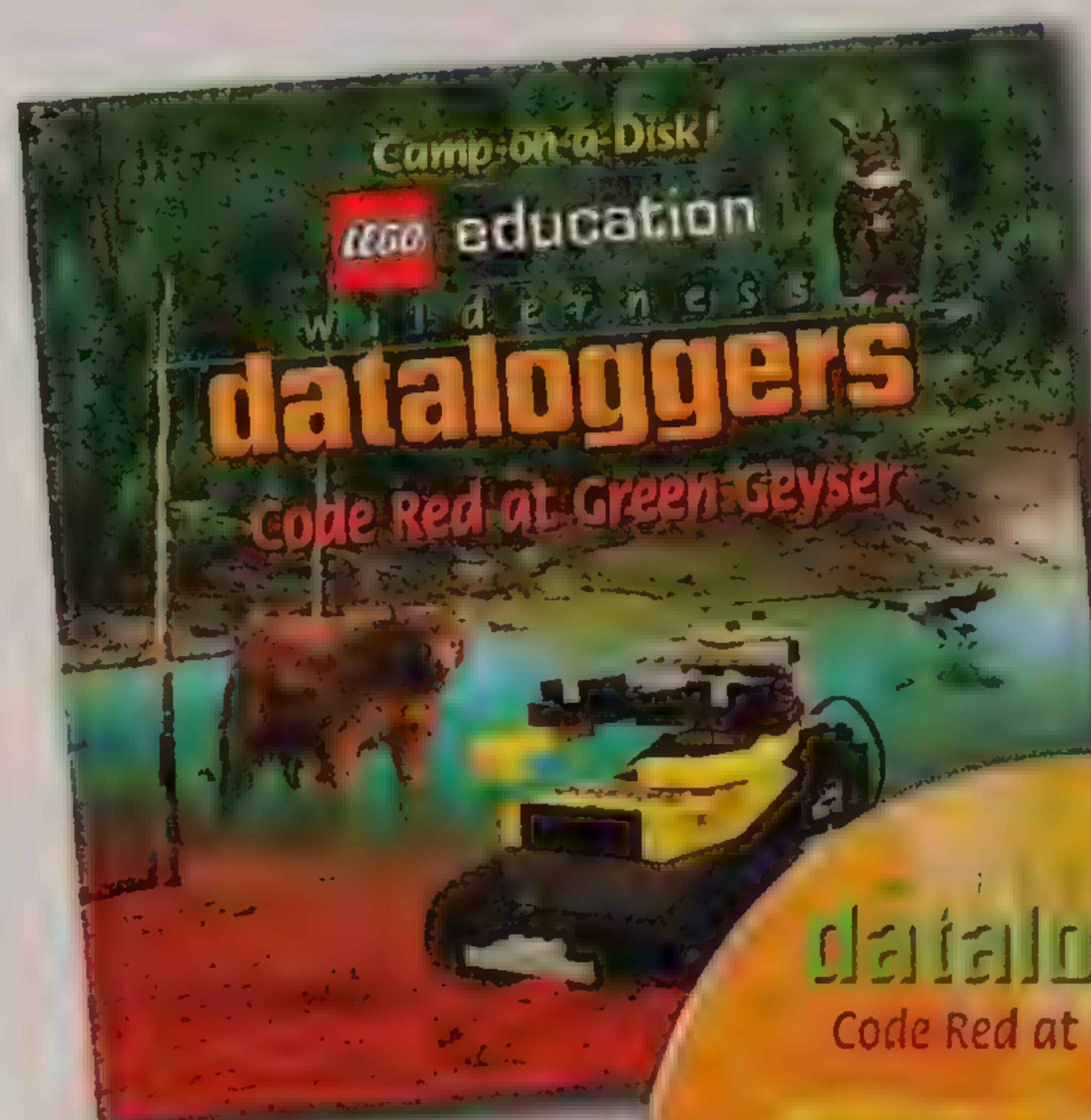
Z991163—\$100

Some activities in *Camp-on-a-Disk* require a third 9V Motor with Gear Reduction (the *Team Challenge Set* contains two), an Angle Sensor, and/or a Temperature Sensor. Call us for more information.

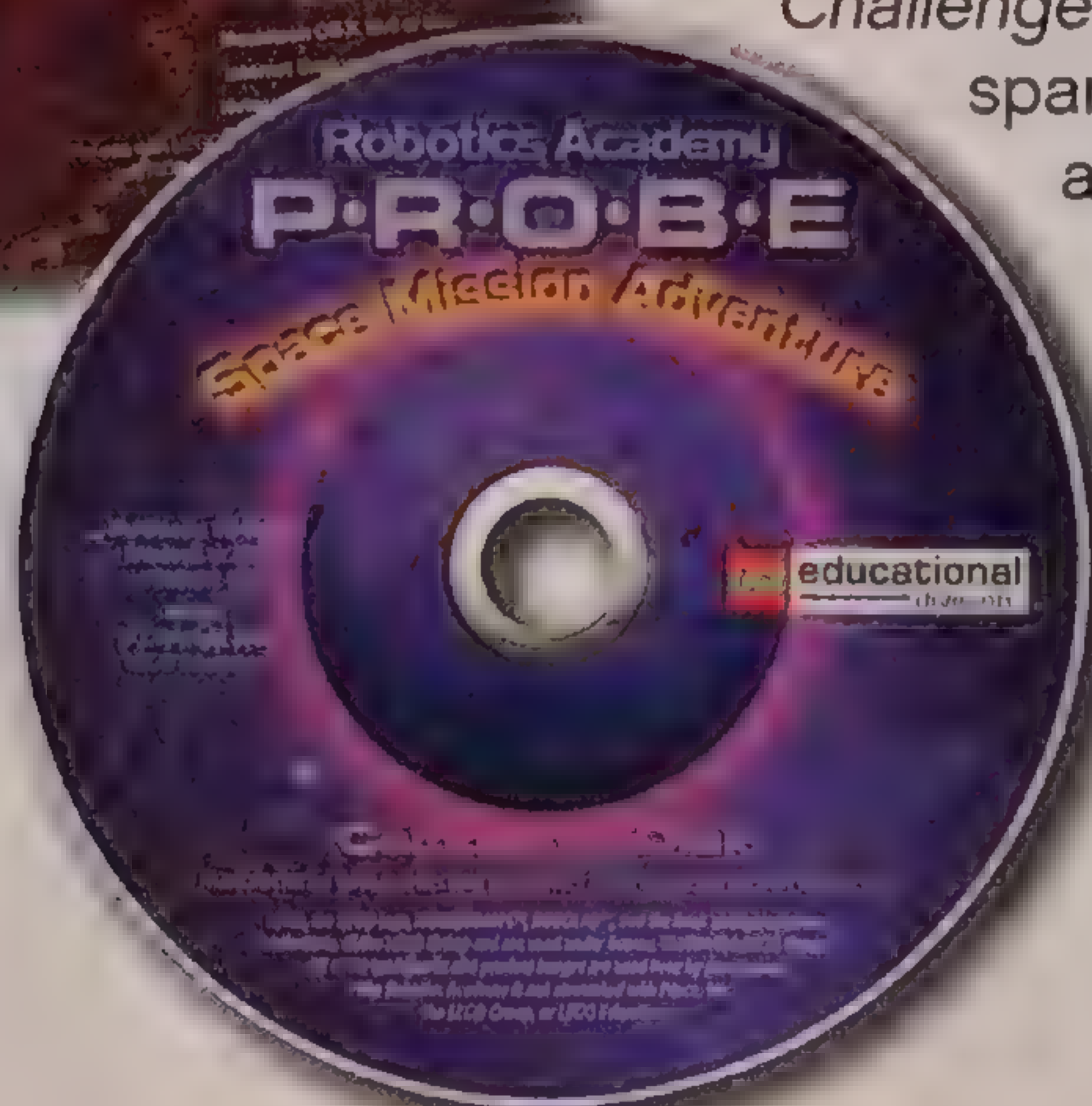
CAMP-ON-A-DISK: WILDERNESS DATALOGGERS SOFTWARE

As mankind moves into a new century, new technologies are created that assist us in taking proper care of our home – the planet Earth. In this *Camp-on-a-Disk* adventure, *Wilderness Dataloggers*, environmentally friendly robots are commissioned to perform tasks in the Green Geyser Wilderness Park after a storm hits, endangering the ecosystem and human visitors. Using ROBOLAB™ and the *Team Challenge Set*, campers help the park recover from the natural disaster. The *Wilderness Dataloggers* CD includes graphics files for creating themed props out of paper and other easy-to-find materials. Also included is a guide for camp facilitators, as well as slideshows, animations, videos, and more.

Z991254—\$100



EXCLUSIVE



CAMP-ON-A-DISK: PROBE SOFTWARE **EXCLUSIVE**

LEGO® Education's *Camp-on-a-Disk: PROBE* takes campers on a fun- and fact-filled expedition into deep space. Combined with *Team Challenge Sets* and ROBOLAB™ software, the camp curriculum spans one week. Campers will build five robots to explore and perform tasks on Planet H-99, including preparing and building a base camp, monitoring a volcano, rescuing a lost vehicle, and more! The CD-ROM contains all of the information and curriculum to operate an independent robotics camp, including a camp itinerary, forms, posters, robot building instructions, animated slide shows, extensive challenges, robot building and programming assistance, and more!

Z991122—\$100



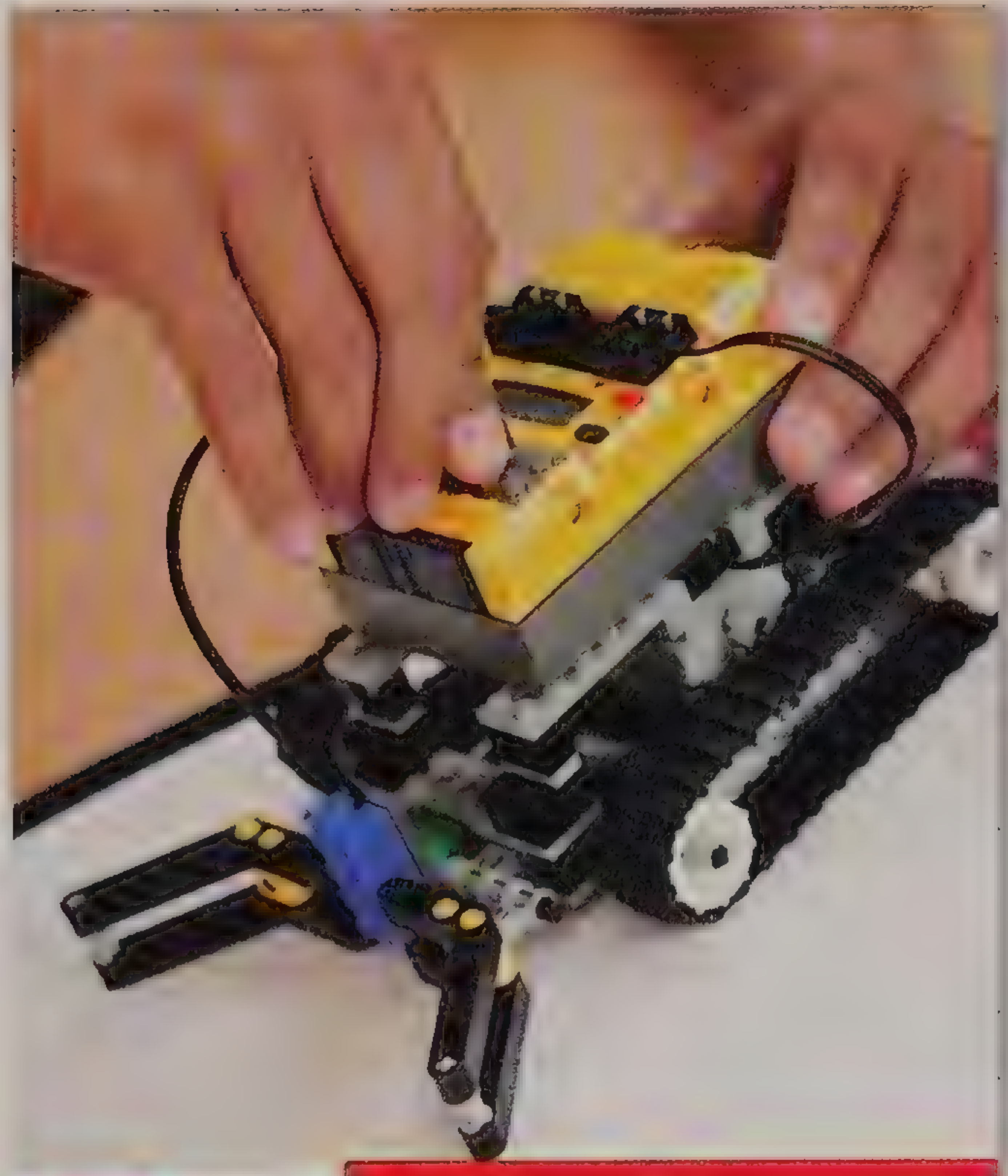
LEGO education

www.LEGOeducation.com

ROBOTICS POSTER 1

17" x 23".

Z991240—\$5



LEGO education

www.LEGOeducation.com

ROBOTICS POSTER 2

17" x 23".

Z991241—\$5



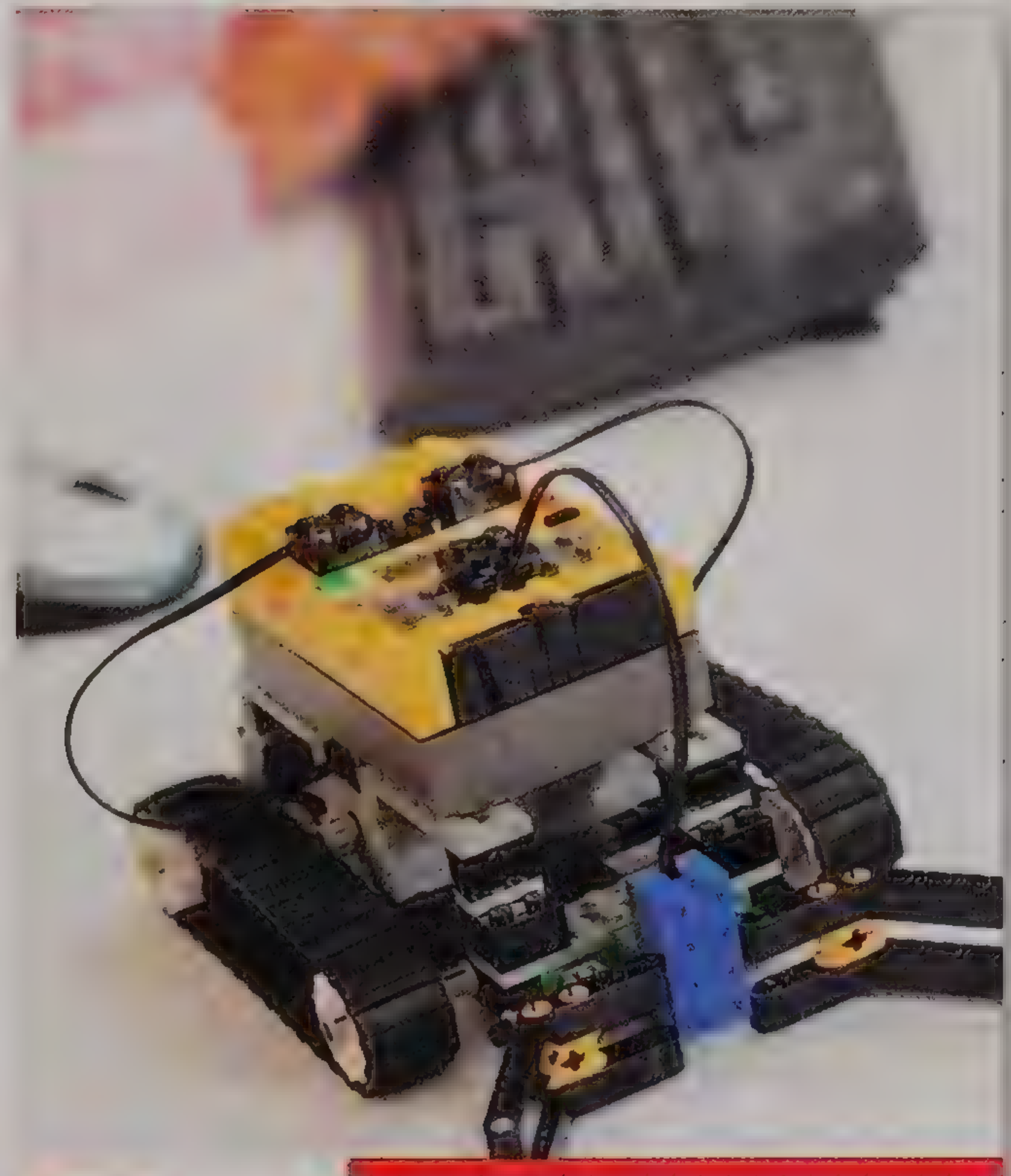
LEGO education

www.LEGOeducation.com

ROBOTICS POSTER 3

17" x 23".

Z991242—\$5



LEGO education

www.LEGOeducation.com

ROBOTICS POSTER 4

17" x 23".

Z991243—\$5

ROBOTICS POSTER PACK **EXCLUSIVE**

These *RCX* posters bring the world of LEGO® Education robotics to the classrooms, hallways, and labs of your school. Get all four posters in this one convenient pack, or buy them individually above. Each poster measures 17" x 23".

Z991244—\$15

RCX Accessories

RCX PROGRAMMABLE BRICK **EXCLUSIVE**

The *RCX* microcomputer is the brain of the LEGO® MINDSTORMS® for Schools system. It receives programs for the ROBOLAB™ software (Windows or Mac) via an infrared computer link and stores up to five programs at a time. The *RCX* then runs the programs when activated.

Up to three inputs can be used by the *RCX* to sense events in its environment, which in turn can determine what the three outputs will do to react to the sensing data. Requires six AA batteries or AC adapter, sold separately.

Z979709—\$139

AC ADAPTER

Allows the *RCX* to operate from a main power supply rather than from batteries. We recommend purchasing one per *RCX*. Also works for the *NXT Rechargeable Battery*.

Z979833—\$23

INFRARED TRANSMITTER WITH CABLE

Download ROBOLAB™ programs from your computer to the *RCX* with the *Infrared Transmitter*. Works with both Mac and WIN platforms. Two cable types are available – USB and serial. The USB tower requires ROBOLAB™ 2.5 software or above, while the serial tower works with all versions of ROBOLAB™. The serial tower requires one 9V battery. We recommend purchasing one tower per computer.

Z979783 Infrared Transmitter with USB Cable—\$35.95



For safe and efficient charging, follow all manufacturer instructions.

NIMH BATTERY CHARGER AND BATTERIES

This eight-station charger charges AA and AAA nickel metal hydride batteries in about eight hours. Comes with eight NiMH AA 2000 mAh batteries. The charger will also charge nickel cadmium batteries.

Z991334—\$36

Z991261 AA Rechargeable 2500 mAh NiMH Battery (pkg of 2)—\$5.75

TECHNOLOGY RESOURCE SET

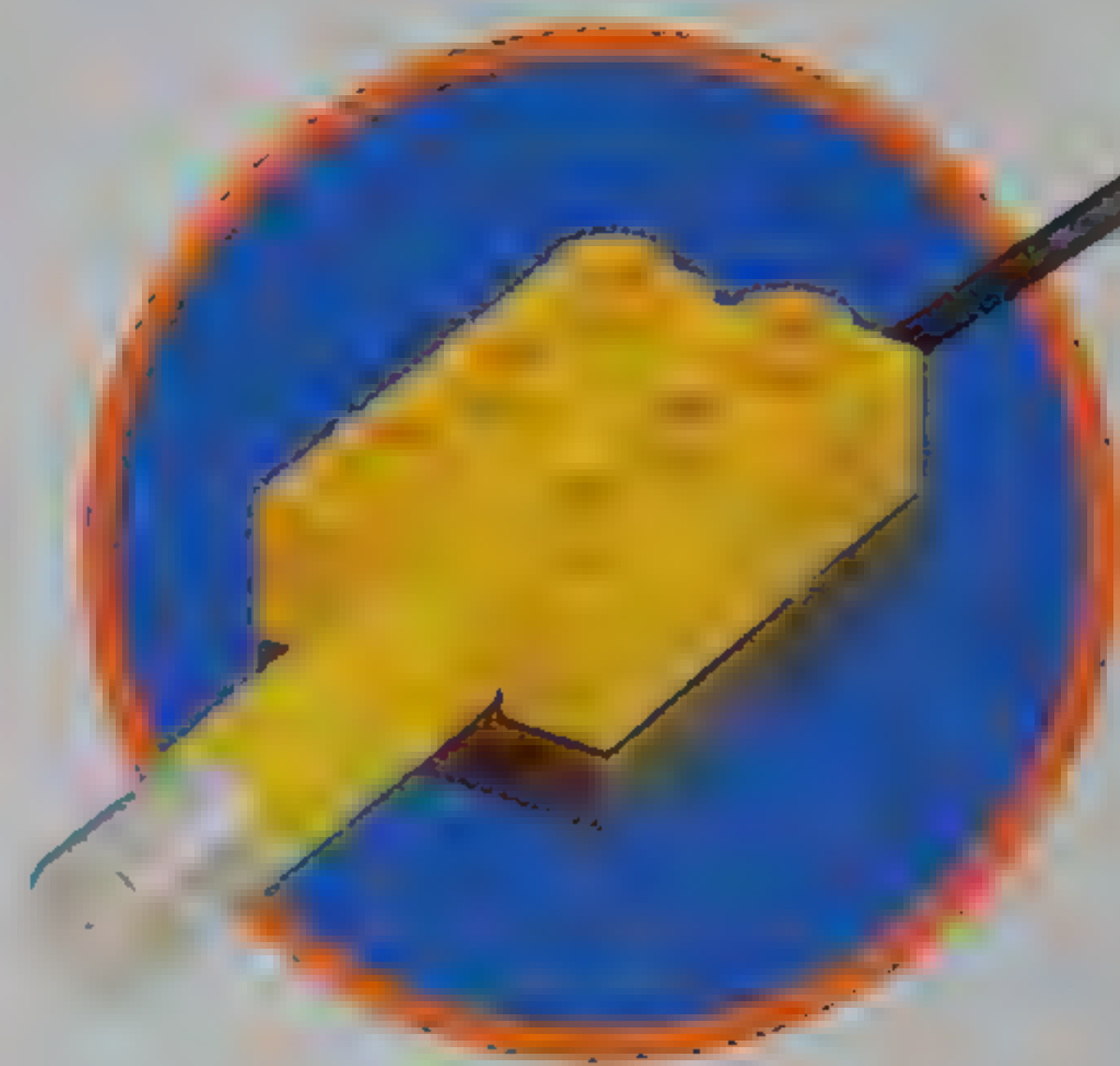
This set is an excellent resource set for LEGO® projects small and large. It's perfect for teachers who want to create their own open-ended design challenges and serves as an excellent supplement to both the *ROBO Technology* and *Team Challenge Sets*. Watch your students design and invent solutions to solve problems using this set's cam wheels, axle extenders, crane hook, wheels, rack and pinion gears, bricks, plates, and gear blocks. The *Technology Resource Set* contains over 1,100 elements and is compatible with all other LEGO robotics materials.

Z979649—\$59

LEGO® SENSOR PACK

Includes one each of the following sensors: *Temperature*, *Light*, *Angle*, and *9-Volt Touch and Leads*.

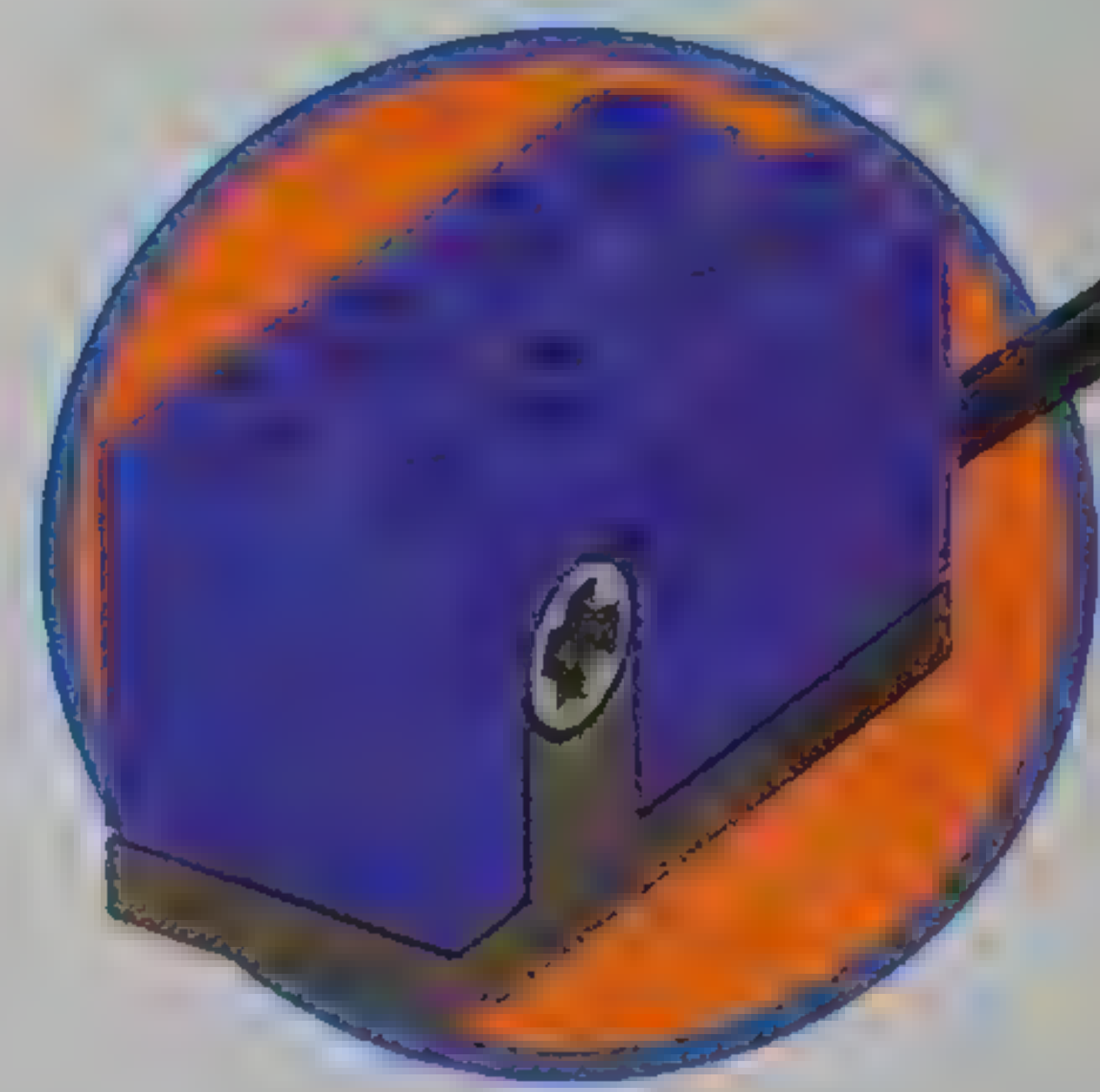
Z900098—\$79



9-VOLT TEMPERATURE SENSOR

-20°C to +50°C.

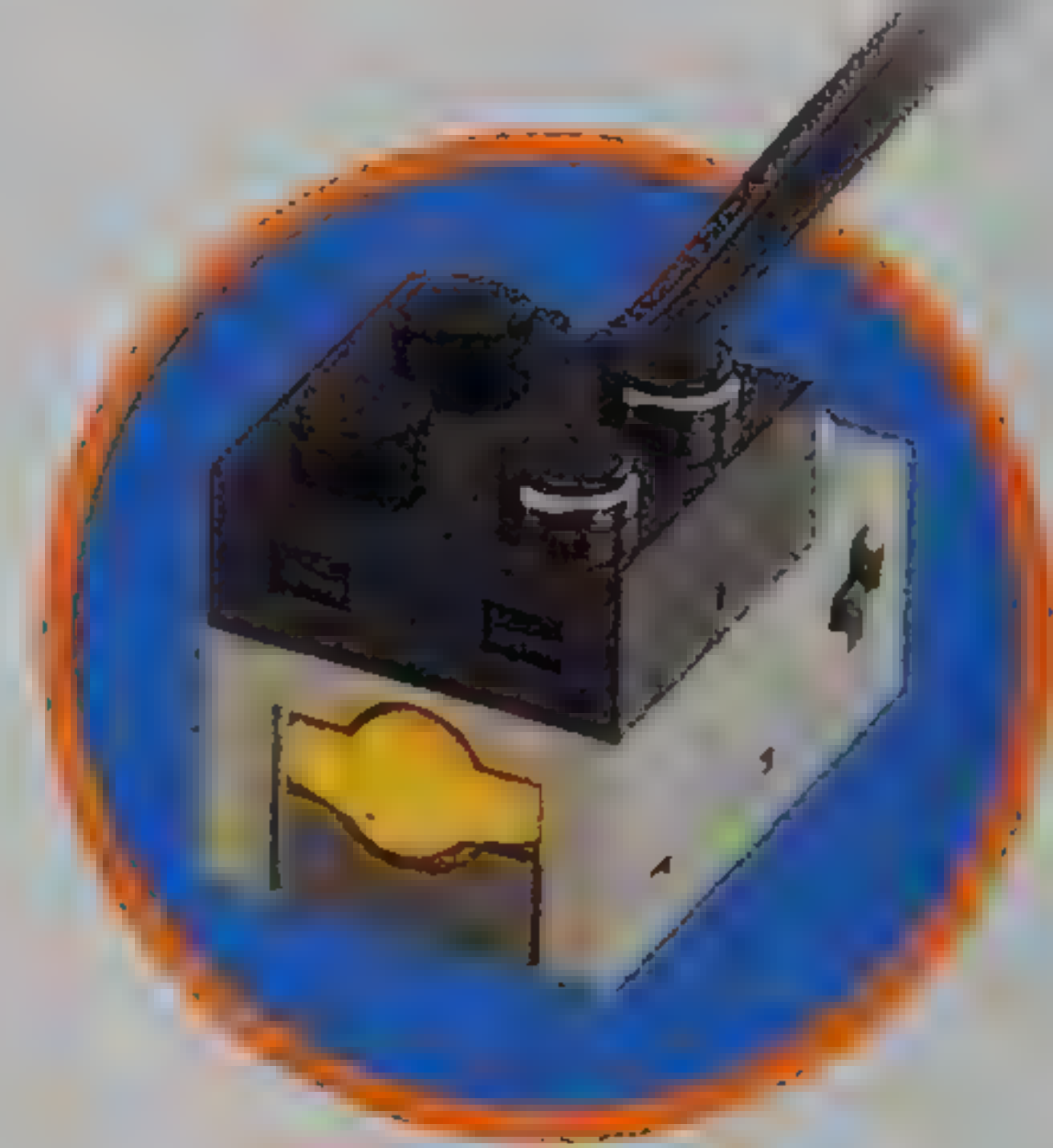
Z979889—\$31.95



9-VOLT ANGLE SENSOR

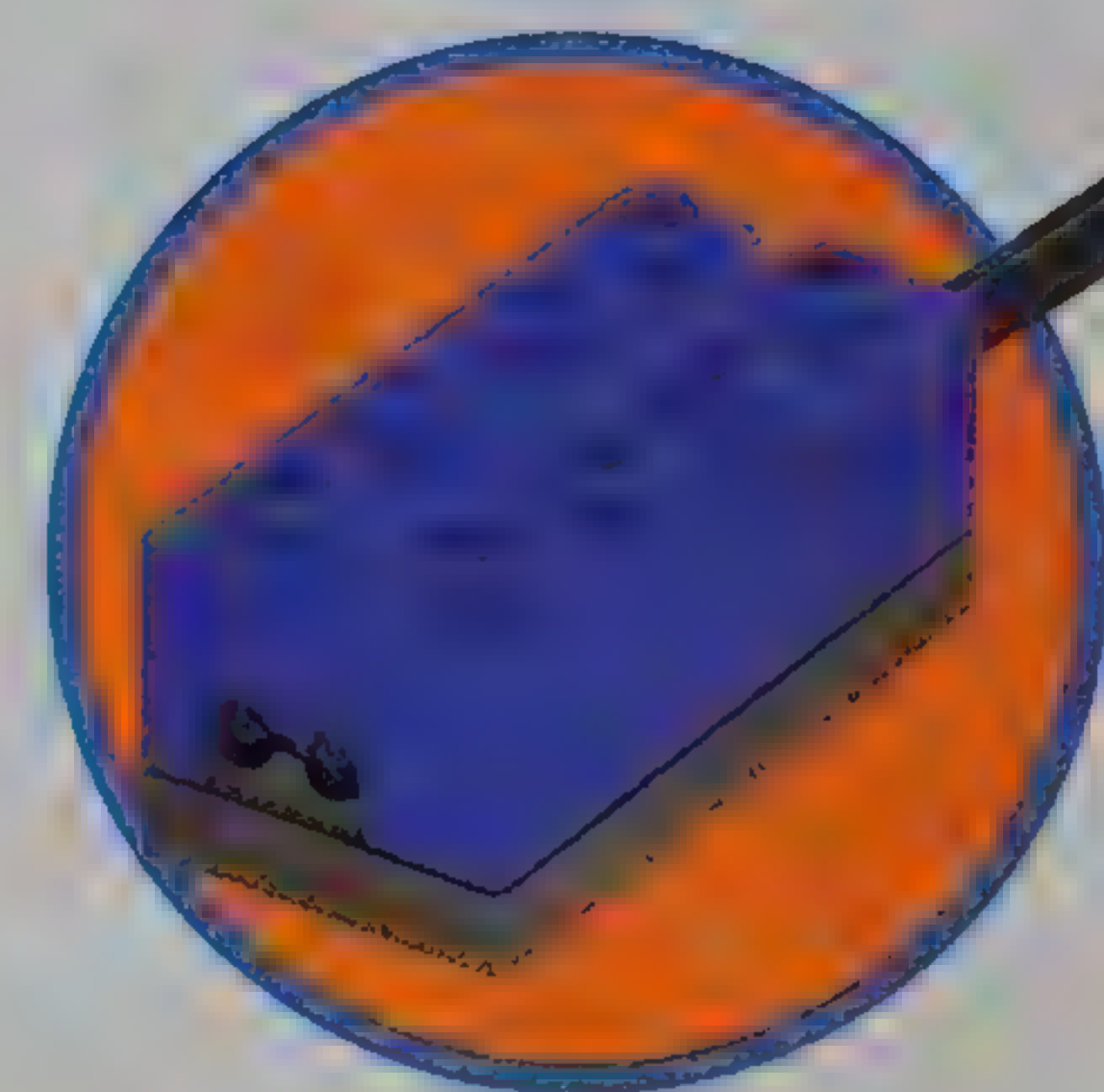
16 positions per rotation, max. 500 RPM.

Z979891—\$18.95



9-VOLT TOUCH SENSOR AND LEADS

Z779911—\$13.95



9-VOLT LIGHT SENSOR

0.6 to 760 lux.

Z779758—\$16.95

DCP SENSORS

DCP produces data-logging products that are used throughout the world.



A. VOLTAGE SENSOR

+/-25 volts DC; resistance over probes: 410 ohms.

Z990252—\$59

B. PROTEMP SENSOR

-30°C to +130°C.

Z990249—\$39

C. HUMIDITY SENSOR

0-100% relative humidity over a temperature range of -20°C to +80°C.

Z990250—\$149

D. POSITION SENSOR

360° rotation, 340° measured.

Z990248—\$119

E. AIR PRESSURE SENSOR

0-200 kPa (approx. 0-30 psi).

Z990253—\$165

F. SOUND SENSOR

50 dBA to 100 dBA; frequency response is nominal. A-weighted.

Z990247—\$89

G. PH SENSOR ADAPTER

To be used with pH electrodes with an output of 59.1 mV per unit of pH at 25°C. pH sensor not included.

Z990251—\$89

H. REDOX ADAPTER

May be used as a high-impedance voltage adapter for connecting other sensors or equipment. Voltage not to exceed +/-1250mV.

Z990697—\$119

I. LIGHT LEVEL SENSOR

For high-resolution light intensity measurement in the range of 0 to 25,000 lux.

Z990693—\$139

J. DESIGNER SENSOR SET

Includes the *Digital Designer Sensor* and the *Analog Designer Sensor* that measure voltages from 0 to +2.5 volts DC.

Z990694—\$49

K. LINEAR ACCELEROMETER SENSOR

Acceleration range: -50 m/s/s to +50 m/s/s; tilt range: -90° to +90°.

Z990696—\$229

L. CURRENT PROBE SENSOR

Includes current probe adapter with 4 mm sockets and a pair of cables with a set of interchangeable plugs, probes, and clips. Measures DC current in the range of 1A to +1A DC.

Z990692—\$59

LEGO®-DCP SENSOR ADAPTER

This adapter enables you to connect DCP's range of sensors directly to the RCX. Using ROBOLAB™ 2.5.4, you can now include a broader range of sensors into your robotics and science activities. Remember, each RCX can only have three sensors connected at one time.

Z779917—\$59

Note: Each DCP sensor listed on this page must use a LEGO®-DCP Sensor Adapter, shown above.



VERNIER GO TEMP! TEMPERATURE PROBE

Great for science fair projects, *Go Temp!* monitors temperatures for fish tanks, greenhouses, soil, and many other applications. This easy-to-use temperature probe connects directly to your Windows or Macintosh computer's USB port. Using the included *Logger Lite* software, students can collect, analyze, print, and save the *Go Temp!* data. Temperature range is -20°C to 110°C with an accuracy of +/-0.5°C.

Z991187—\$39

VERNIER SENSOR ADAPTER FOR NXT



Increase the flexibility of your LEGO® MINDSTORMS® Education sets and software with Vernier sensors! For over 25 years, Vernier Software & Technology has produced world-class data collection solutions for teachers, and they have now partnered with LEGO Education to bring their technology to the NXT system. With this *Sensor Adapter*, any of the 40+ Vernier analog (BTA) sensors can be incorporated into NXT creations. Vernier sensors can be purchased at www.vernier.com, and the programming block can be downloaded for free at www.LEGOeducation.com/vernier.

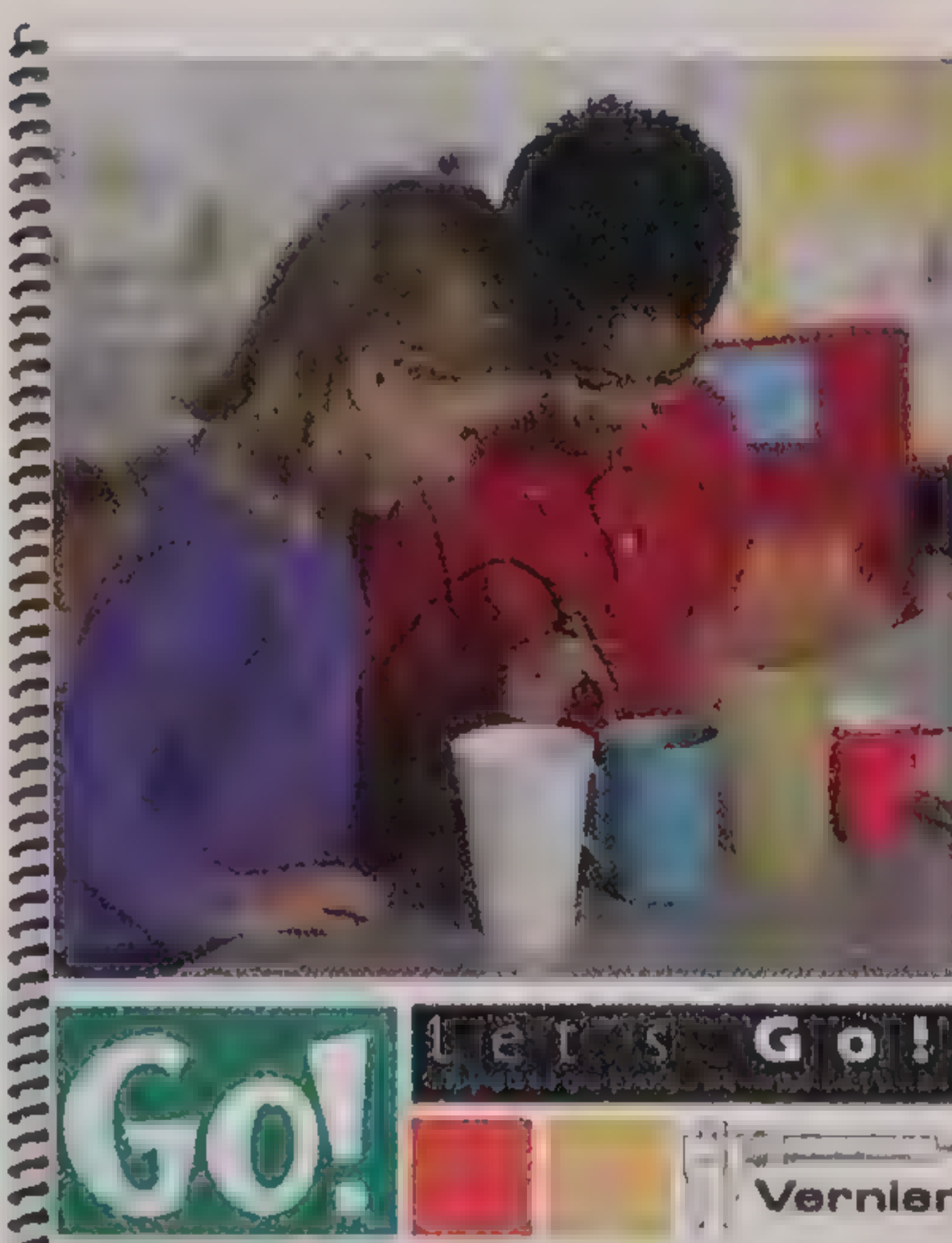
Z991377—\$39

VERNIER LET'S GO! INVESTIGATING TEMPERATURE ACTIVITY GUIDE

Designed for elementary classrooms, this activity guide provides 10 lessons for elementary science classes using the Vernier *Go Temp!* sensor. The guide contains student activity pages that can be photocopied for each student group, as well as tables to help students organize the data they gather during the activities. Each activity includes an introduction, objectives, materials list, procedures list, and an analysis section. The teacher sections for each activity include sample results, answer keys, and helpful hints for implementing the activities. Some activities use a computer. If only one is available, these activities can be easily led with a teacher demonstration instead. Paperback, 104 pages.

Level: *Elementary*

Z991188—\$15



BRUTUS

BRUTUS FEATURES

Axes: 6

Base: 6" height x 12" diameter

Base rotation: 90°

Max horizontal reach: 25"

Max gripper width: 3"

PITSCO BRUTUS ROBOTIC ARM

This industrial strength robotic arm executes commands with delicate precision, yet it is rugged enough to withstand years of student use. A simple Windows computer program (included) enables a PC to control *Brutus*. The teach pendant feature will remember movements and repeat an entire sequence automatically at your command.

Brutus' unique "even-grip" pincers grasp objects up to 3" wide without pushing them away. Rugged aluminum and ABS plastic make up *Brutus'* base and arm components. Powerful motors and servos drive the arm via a system of cogged belts and pulleys. You'll find no wimpy, easily stripped plastic gears on this brute! Shipped completely assembled and includes WIN 2000/XP compatible software and all computer interface hardware and connections.

Z754533—\$3,495



ROOSTER

PITSCO ROOSTER R/C ROBOT

This radio-controlled robot is really something to crow about! It's a highly mobile and maneuverable device for manipulating and transporting objects.

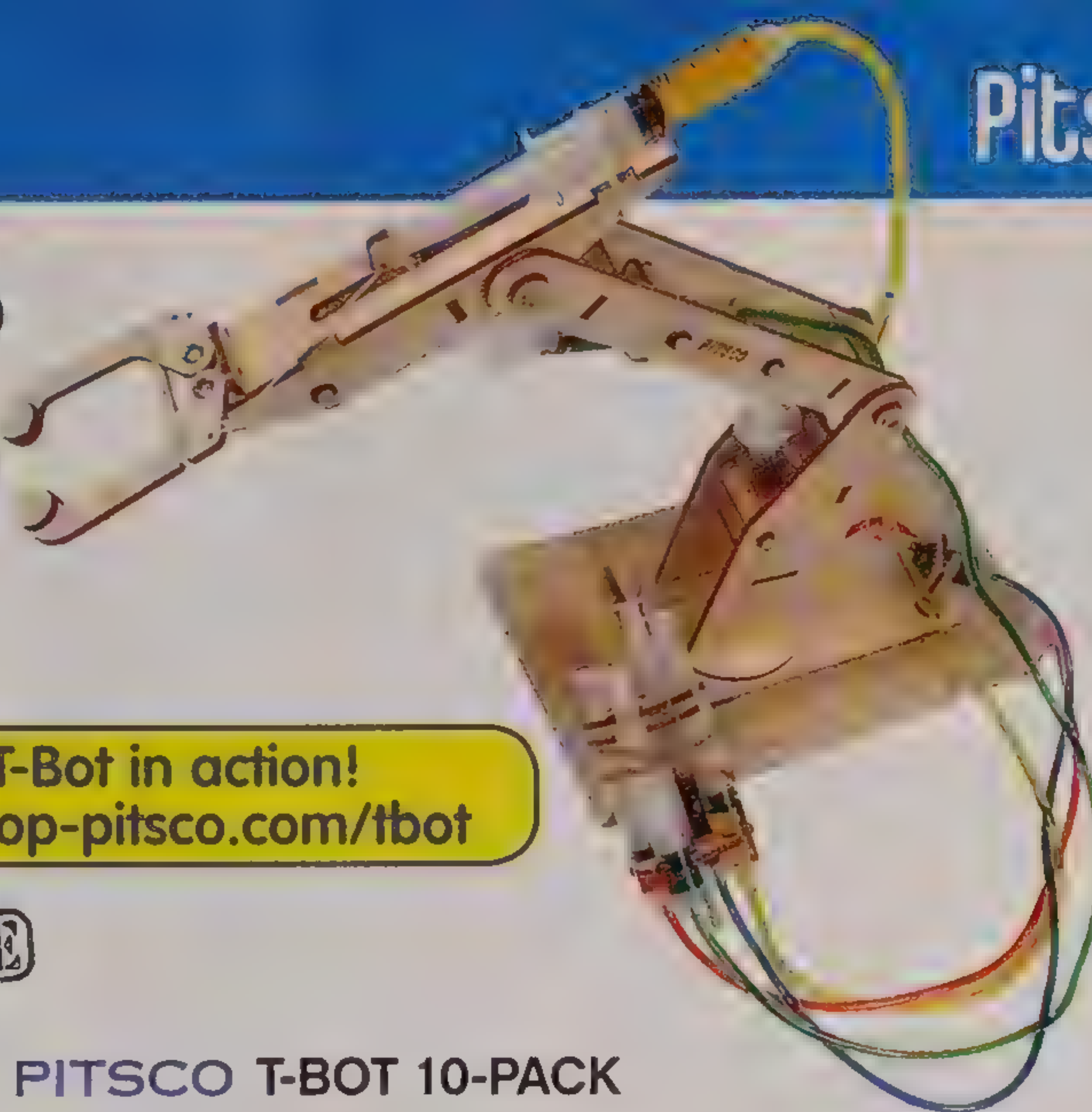
The *Rooster* is the tool for giving students a dynamic, hands-on robotic experience! Rugged construction ensures that the *Rooster* will withstand continuous student use.

Includes a radio transmitter, integrated rechargeable battery pack, charger, detailed instructions, and exciting robotics activities. Robot base dimensions: 8" wide and 7-1/2" long. Maximum gripper height is 9".

Z717273—\$795



T-Bot™



See the T-Bot in action!
Visit www.shop-pitsco.com/tbot

EXCLUSIVE

PITSCO T-BOT

Students will be clamoring to work together just to get their hands on this water-powered robot! Our *T-Bot* illustrates the use of hydraulic power and mechanics – plus, it's an excellent exercise in teamwork.

See how syringes (needle free, of course!), tubes, and water work together to power the parts of this robotic arm. Each control moves one of the *T-Bot*'s axes. All four controls can be used one at a time or all at once by a team of students – they can try basic maneuvers or even picking up and moving objects!

With this hands-on project, students understand loads of science, technology, engineering, and math concepts. *T-Bot* can be used for everything from showing third graders how to work together to helping college students explore load and effort forces.

Requires both construction glue and cool-melt glue, sold separately.

Just a few of the *T-Bot*'s features:

- Laser-cut parts
- Easy to assemble
- Inexpensive – no costly electronics or mechanical parts
- Excellent introduction to robotics
- Intuitive – and fun – operation

Z759470—\$39.95

PITSCO T-BOT 10-PACK

Includes what you need to build 10 of our popular *T-Bots*. Saves some bucks over individual kits.

Z731724—\$379.50

FLEXIBLE TUBING

Transmits energy from one syringe to another. 1/8" inside diameter.

Z750972 (100' roll)—\$12

6 CC SYRINGE

For use with Pitsco *T-bot*.

Z750973—\$.50 each

10 or more—\$.45 each

PITSCO T-BOT VIDEO

The Pitsco *T-Bot* is a great project for demonstrating hydraulic power, simple machines, and basic robotics. But building the laser-cut kit is a detailed procedure; this video will smooth the path for your students to succeed in building their *T-Bot*.

Along with easing the building process, the program explains some of the science and mechanics of this fun class project. Closed-captioned. Time: 20 minutes.

Level: Middle School-High School

Z732479 VHS—\$24.95

Z732915 DVD—24.95



Save \$35

T-BOTS GETTING STARTED TEACHER'S GUIDE

Pitsco's *T-Bot* hydraulic robot arm delights students – now, this *T-Bots* guide will delight teachers. This guide nearly overflows with content-rich lessons covering the Cartesian coordinate system, simple machines, basic programming, mechanical advantage, electromagnetism, teamwork, and more!

The *T-Bots GS Teacher's Guide* contains NSTA, NCTM, ITEA, and NCTE standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students.

Z759727—\$24.95



GS
GETTING STARTED

EXCLUSIVE



PITSCO T-BOT – GETTING STARTED PACKAGE

This Getting Started Package comes with everything needed for a classroom of 20 to 40 students working in teams of two to four. Assembly requires cool-melt glue, sold separately. The package comes complete with:

- **Z731724 Pitsco T-Bot 10-Pack (Pkg of 10)**\$379.50
- **Z731646 Eyewitness: Robot Book**\$15.95
- **Z732479 T-Bot Video**\$24.95
- **Z754618 HD Bond Adhesive (5 bottles included in GS package) each**.....\$1.95

Z991401 Pitsco T-Bot – Getting Started Package - \$395

A \$430.15 value!



Robot Kits



MECHANICAL RABBIT KIT

Peter Cottontail, look out! This mechanical, hopping rabbit will be a real treat for students. With its rear legs kicking it forward, this colorful pink bunny moves like a real rabbit. This is the fastest robot in the Robocraft series. Includes a small screwdriver for robot assembly. Requires one AA battery, sold separately.

Level: Intermediate

Z759011—\$15.25



REMOTE CONTROL

BOXING FIGHTER KIT

Finally, a fun Robocraft robot you can control! Mix learning and the fun of boxing with the *Remote Control Boxing Fighter*. The kit has a twin motor gearbox, allowing the boxers to punch while moving forward, backward, to the left, or to the right. Hitting the face of another boxer enough – with either an uppercut or a jab – will make it fall over. Included is a practice punch ball for “training” the boxer. Or have your class build more than one fighter and have a real bout!

A small screwdriver is included for robot assembly. Requires two AA batteries, sold separately.

Level: Intermediate

Z759012—\$30.75



HYPER LINE TRACKER KIT

Hyper, yes, and we really mean it. This little “cyberbug” has a sonic tracking system and is fortified with a multitude of sensors. Photo transistors detect a line, the tracking memory remembers its last track of the black line, and two red LEDs flash to indicate which side of the light sensor is activated. What this all means is that the *Hyper Line Tracker* is the fastest line navigator that we have ever seen.

Level: Intermediate

Z757482—\$64.95

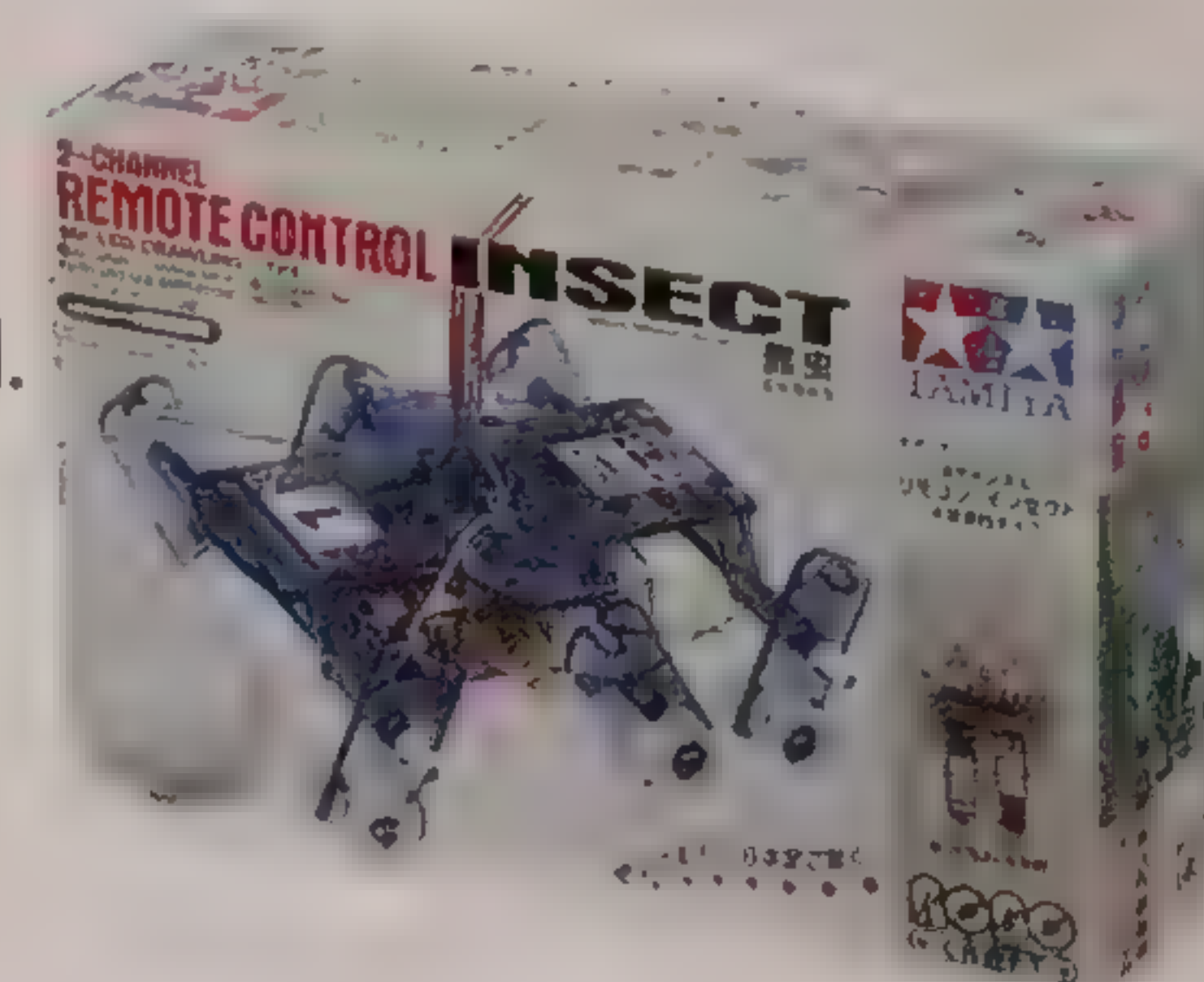


REMOTE CONTROL INSECT KIT

Put away the bug spray; this is one critter you'll want to keep around. This mechanical insect crawls forward, backward, to the right, or to the left – thanks to a two-channel remote control. Yet the remote-control circuit is prewired to the motor and the gearboxes are preassembled to ease assembly. Kit comes with a ball and parts to make goals – so build several robots and have a soccer match! Kit also includes a small screwdriver for robot assembly. Requires two AA batteries, sold separately.

Level: Intermediate

Z759013—\$33



SPIDER III KIT

Cool got even cooler with the development of *Spider III*, the intelligent robot with the radical walking style that avoids interference when confronted by a challenging situation. With its infrared beam, *Spider III* detects objects in its path, signals to change direction, and continues on a new route. That's way cool!

Level: Intermediate

Z757481—\$59.95



ROCKIT ROBOT KIT

This robot includes motors, gear trains, wheels, legs, battery boxes, and parts. No special tools are required, just scissors, a screwdriver, and pliers. AA batteries are sold separately.

This intelligent robot is designed with touch and sound sensors. It reacts when it comes in contact with objects or when it hears a loud noise, such as hands clapping.

Level: Elementary-Intermediate

Z758658—\$28



SUMO ROBOT KIT

This rotund little specimen is actually a multitalented sumo-wrestling robot that can be operated independently or in competition with another *Sumo Robot*. It detects objects by emitting infrared rays and avoids or assails opponents through the use of a dual sensor. Assembling the kit teaches students about electronic circuit schematics, block diagrams, infrared rays, photo diodes, sensors, gear drives, and more!

Level: Elementary

Z757480—\$59.95



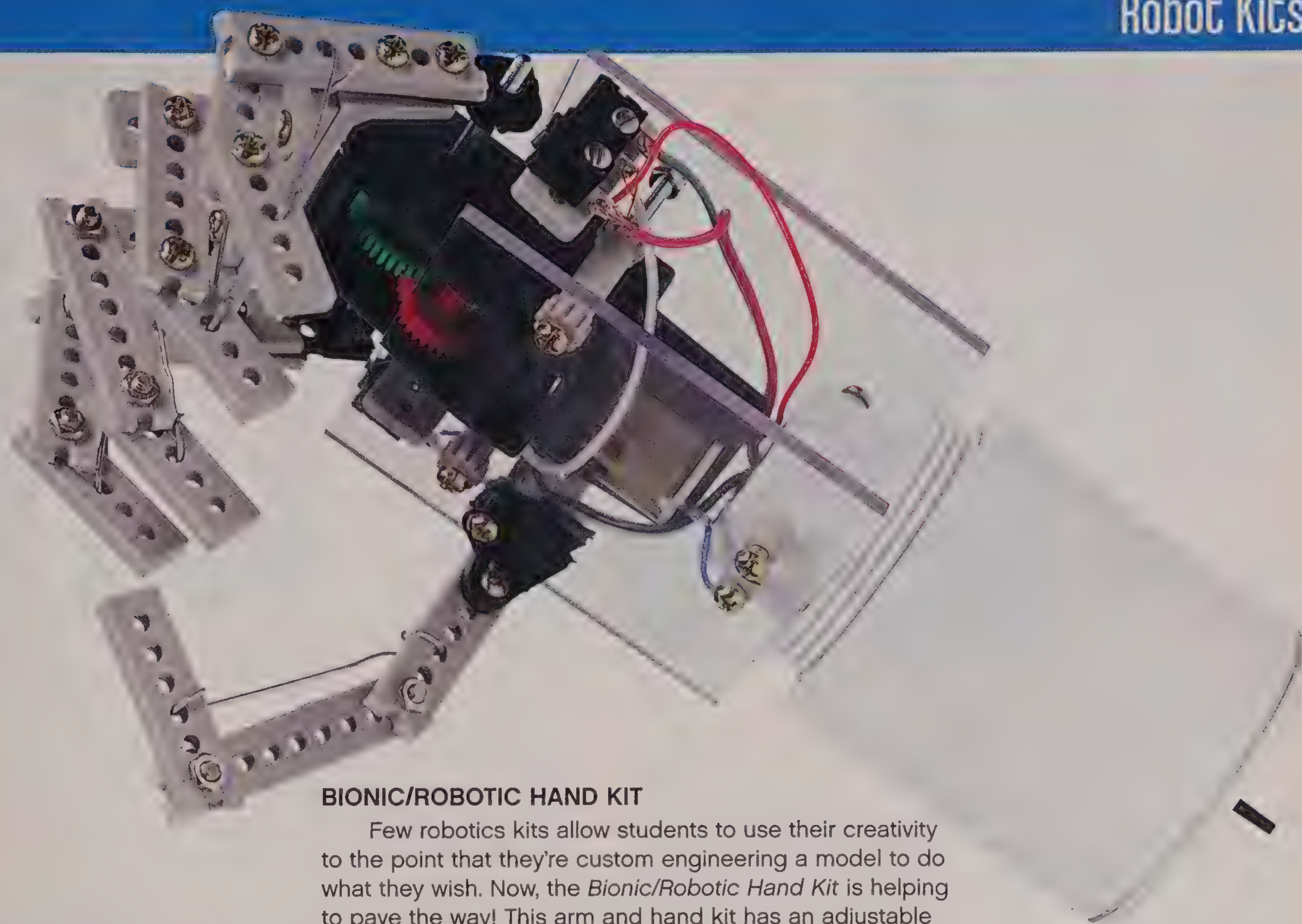
SOCCER JR PRO ROBOT KIT

The award-winning *Soccer JR Pro Robot* has been redesigned by adding a third motor which can catch and shoot a ball (included). Not only do the assembly instructions help prepare the six-legged robot for soccer duty, they also explore the history of robots, three-motor drive systems, the mechanism of legged drive, and wired remote control.

Level: Elementary

Z758660—\$50





BIONIC/ROBOTIC HAND KIT

Few robotics kits allow students to use their creativity to the point that they're custom engineering a model to do what they wish. Now, the *Bionic/Robotic Hand Kit* is helping to pave the way! This arm and hand kit has an adjustable thumb and fingers, and it opens and closes at the touch of a switch. The kit contains all the parts needed to build a life-size, battery-powered model and can be designed as a right- or left-hand model.

Level: High School

Z758678—\$149



MECHANICAL DOG KIT

This mechanical walking dog – one of three mobile animals from Tamiya – teaches children the science of how things move. Made with colorful plastic plates, the dog has four legs, a body, and even a wagging tail! Includes a small screwdriver for assembly. Requires a AA battery, sold separately.

Level: Intermediate

Z758449—\$14.75



MECHANICAL KANGAROO KIT

This mechanical kangaroo brings an exotic animal from down under right to the classroom! The kit – which includes a small screwdriver – consists of colorful plates to make the kangaroo body, a motor, and instructions for how to put it together. Show students the movements of the mechanical kangaroo, which hops like the real animal. Requires a AA battery, sold separately.

Level: Intermediate

Z758450—\$14.75



MECHANICAL BEETLE KIT

More than just a look-alike of the real insect, this mechanical beetle moves like one, too! The beetle kit includes colorful body plates, a motor, and a small screwdriver for assembly. Upon hitting an obstacle, the beetle will use its horn to move around whatever is in its path. Requires a AA battery, sold separately.

Level: Intermediate

Z758451—\$14.75



SCIENTIFIC AMERICAN FRONTIERS: GAMES MACHINES PLAY VIDEO

For many educators, nothing beats a contest to bring out the best in their science and engineering students. This video follows three major contests, including the highly-anticipated annual MIT design contest (featuring a challenge in which pairs of robots face off on a moving teeter-totter), a human-powered submarine race, and the series of contests pitting teams of robot soccer players against each other to win RoboCup 2001. Time: 60 minutes.

Level: High School

Z758645 VHS—\$39.95

MECHANICAL DEVICES FOR THE ELECTRONICS EXPERIMENTER

This textbook on basic mechanical principles explains how to design various mechanical devices, including solenoids, gears and pulleys, and pneumatic and hydraulic systems, but it does not provide plans for entire projects. It is heavily oriented toward robotics but can be used by any experimenter. Good illustrations. Paperback, 237 pages.

Level: High School-Adult

Z756591—\$21.95



EYEWITNESS: ROBOT BOOK

This easy-to-digest book is full of intriguing bits of information about robots. Discover how fictional robots inspire the technology to create real robots; how robots help us in industry, in space, and in the lab, as well as around the house; how they sense the world around them; and more.

Amaze your students with all the different robots there have been – and will be! Hardback, 64 pages.

Level: Intermediate-Middle School

Z731646—\$15.95

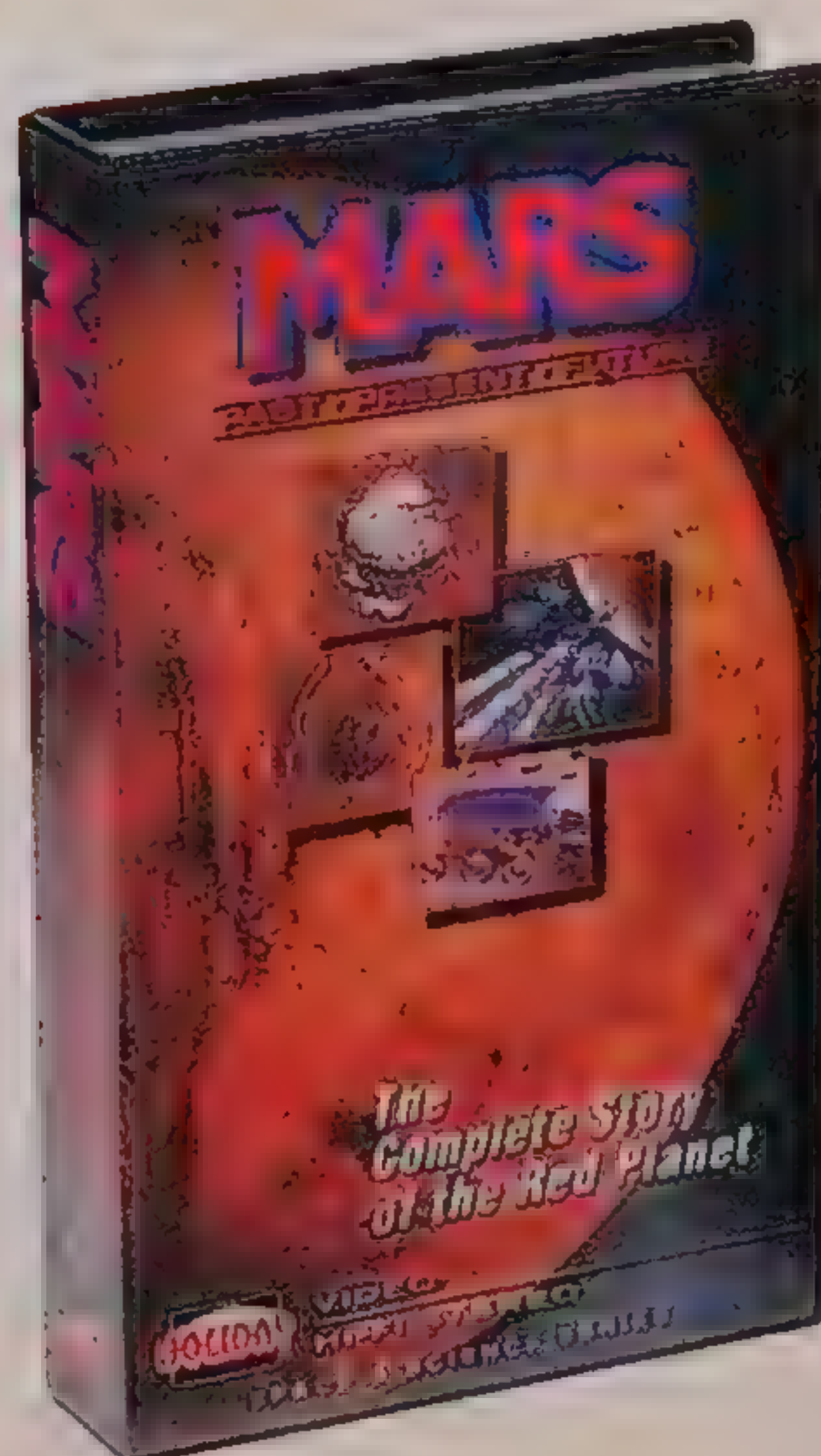
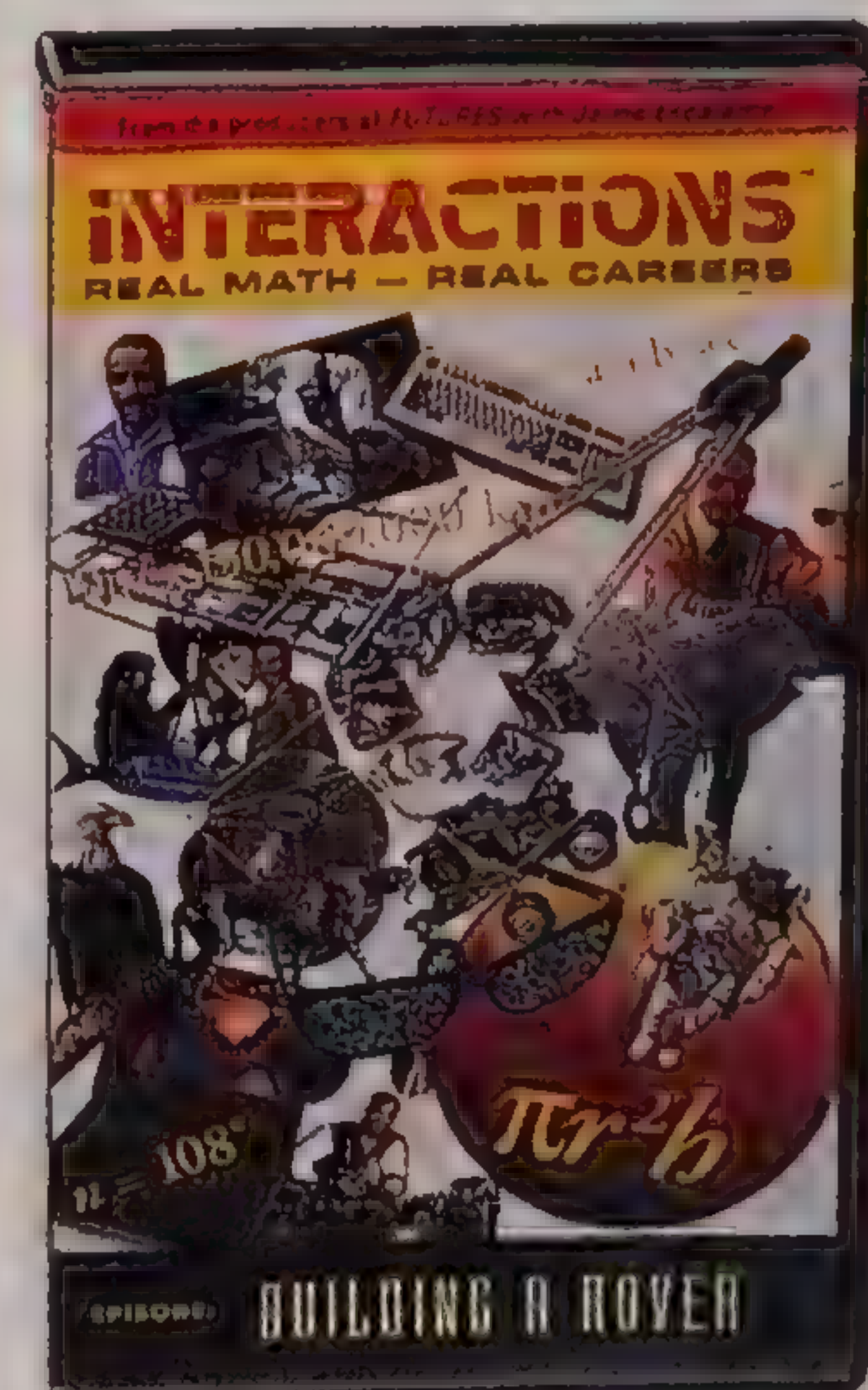


INTERACTIONS: BUILDING A ROVER VIDEO

What kind of vehicle can traverse the surface of the Moon or Mars? It must be one part robot, one part all-terrain vehicle, and one part remote-controlled car. It must be able to think for itself and even repair itself! At NASA's testing ground, a team of scientists demonstrate their vehicle, Rocky 2. Building a rover will spark your students' ingenuity while demonstrating the importance of mathematical concepts like geometry and patterns. Includes a teacher's tip sheet with suggested vocabulary and activities. Time: 15 minutes.

Level: Middle School-High School

Z754461 VHS—\$59.95



MARS: PAST, PRESENT, FUTURE VIDEO

This video, subtitled *The Complete Story of the Red Planet*, describes what we currently know about Mars based on the Mars Pathfinder and Mars Global Surveyor missions. It also speculates on future missions and what questions they will answer. Actual photographs of the Martian surface are interspersed with computer simulations and explanations from Martian experts. Time: 46 minutes.

Level: Intermediate-Adult

Z990215 VHS—\$24.95

**CLASSIC LEGO®
MINDSTORMS®
PROJECTS AND
SOFTWARE TOOLS:
AWARD-WINNING
DESIGNS FROM
MASTER BUILDERS**

With this book/
DVD combo, you
get seven books
in one: *Building
Robots with LEGO®
MINDSTORMS®,
Programming LEGO
MINDSTORMS*

*with Java, LEGO
MINDSTORMS Masterpieces, LEGO Software Power Tools, 10 Cool
LEGO Darkside Projects, 10 Cool Ultimate Builders Projects, and
10 Cool Robotics Invention System 2 Projects.* The book contains
seven complete "Master" projects that illustrate how great design,
planning, mechanical engineering skills, and programming
can create stunning and award-winning projects with your
LEGO MINDSTORMS RCX set. The DVD contains instructions for
more than 40 projects in Adobe PDF form, a full suite of LEGO
software tools, and RCX/NQC code files. The projects range from
the simple to the sophisticated, and they are perfect for self-
teaching. Paperback, 549 pages

Level: Middle School-High School

Z991396—\$51.95



**HOW TO BUILD YOUR
OWN PRIZE-WINNING
ROBOT**

Robotics and
electronics have never been
easier for young people!
This book offers sections
on electric motors, motor
control, electric voltages,
circuit boards, and servos.
Teach your students how to
build robots using anything
from computers to a variety
of household products. A
great source for building
great robots. Hardback, 128
pages.

Level: Middle School-High School

Z758622—\$20.95



MARS: PAST, PRESENT, FUTURE SOFTWARE

Students can use this CD-ROM as a 50-minute
continuous-play program. Alternatively, they can explore Mars at
their own pace using the interactive menus to travel through six
segments dealing with Martian history, exploration, and future
plans – including colonization and resource utilization. Stunning
graphics and a clear narrative make this an excellent
supplement for a science, space, or technology curriculum.

Level: Intermediate-Adult

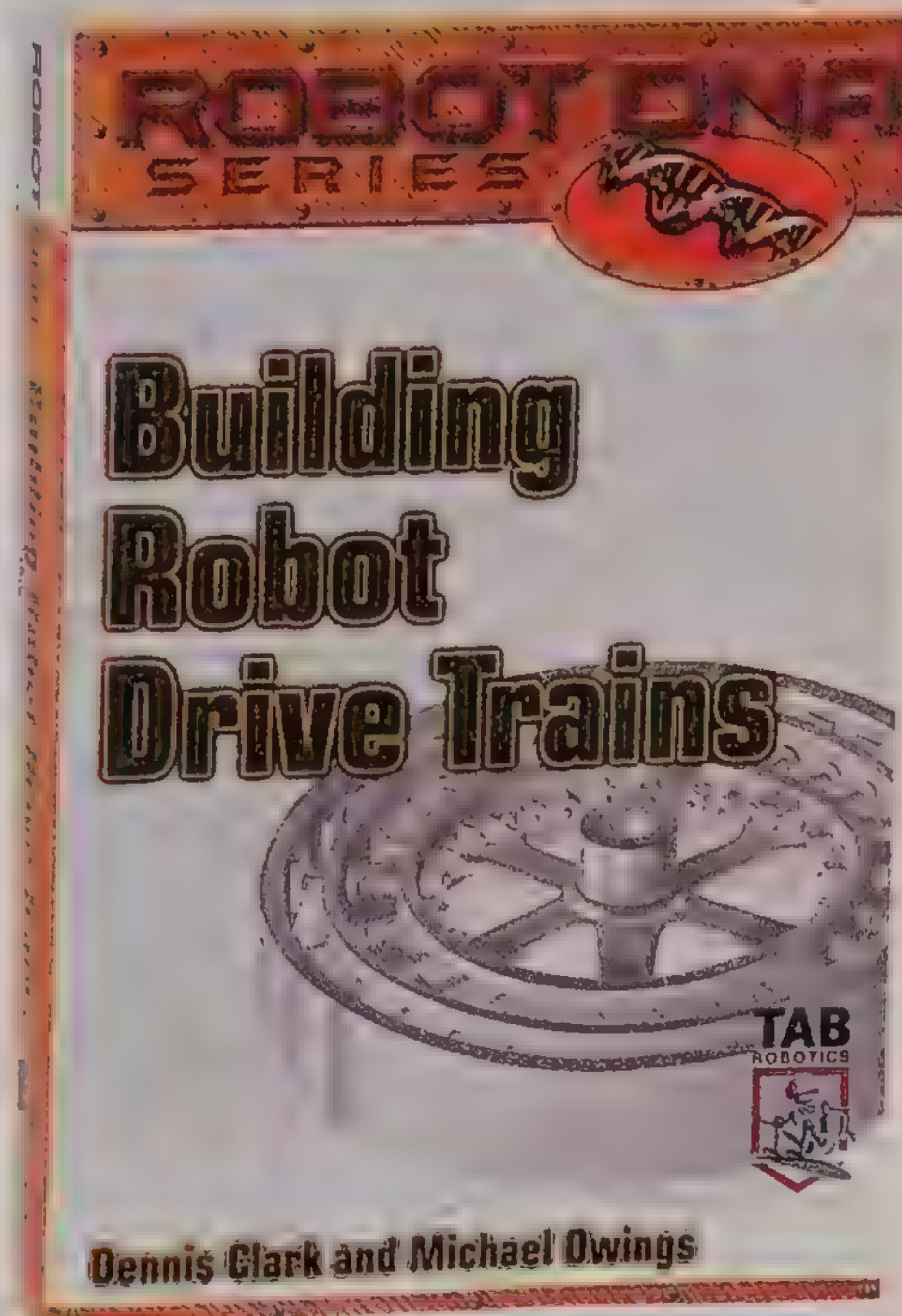
Z990216 WIN/Mac CD-ROM—\$24.95

**BUILDING ROBOT DRIVE
TRAINS**

Forget the hard-to-
understand mumbo jumbo
explaining the technology
of movement! This black-
and-white book, part of
the *Robot DNA* series,
is just what robotics
hobbyists need to build
an effective drive train and
to fully understand robot
locomotion. A complete
overview of basic robot
locomotion and key issues
such as electric motors,
terrain changes, and
battery types are included.
Paperback, 400 pages.

Level: High School

Z758644—\$24.95





MECHANISMS SET

The *Mechanisms Set* presents students with 12 different models that are designed to be built by teams of two. Teamwork is essential with the *Mechanisms Set*, as two building guides for each model are included – one for Student A and one for Student B. Each student assembles part of the model, and then the two parts are joined to complete the building aspects of the project. The models demonstrate various physical science and technology concepts, including forces and motion, simple machines, measurement, energy, and more. The set contains 352 LEGO® Technic elements and building instructions for 12 models, all in a sturdy storage bin that includes a sorting tray. The set is appropriate for 4th grade and up.

Z979632—\$85.95

This set previously appeared as, and is the same as, Science & Technology Set.



MOTORIZED MECHANISMS SET

Combining the *Mechanisms Base Set* with the *Power Add-On Set*, students have the ability to build 16 different models demonstrating various physical science and technology concepts, including powered forces and motion, simple machines, measurement, moving energy, magnetism, and more. The *Motorized Mechanisms Set* is perfect for teaching teamwork, as two building guides for each model are included – one for Student A and one for Student B. Each student assembles part of the model, and then the two parts are joined to complete the building aspects of the project. This set is a perfect tool for preparing students for the engineering and problem-solving challenges they will encounter with LEGO® Education robotics sets and curriculum.

Z979660—\$117.95



MECHANISMS POWER ADD-ON SET

Combine the *Power Add-On Set* to the *Mechanisms Base Set* and watch as your students bring their models to life! With the addition of the motor, battery box, and connecting leads, your students can build four new models and solve two additional problem-solving tasks. Building instructions for the new models are included. Activities are included in the *Mechanisms Activity Pack*.

If you purchased the *Mechanisms Activity Pack* prior to August 2007, call us and we'll send the new activities at no charge.

Z979628—\$35.95

This set previously appeared as, and is the same as, Science & Technology Power Add-On Set.



MECHANISMS ACTIVITY PACK

The *Mechanisms Activity Pack* enables your students to explore scientific inquiry, physical science, technology, teamwork, problem-solving skills, and creativity in a fun and engaging way. Used in conjunction with the *Mechanisms Set*, students discover problems and invent their solutions, behaving as scientists do and making their own discoveries along the way. Students will study forces and motion, simple machines, measurement, energy, and more. The activity pack comes in a three-ring binder and includes twelve 45-minute lessons, four extension activities, worksheets, a glossary, teacher notes, and animations on CD-ROM. Also included are four lesson plans and two additional extension activities for the new *Mechanisms Power Add-On Set*. The activity pack is appropriate for 4th grade and up.

Z979635—\$42

This pack previously appeared as, and is the same as, Science & Technology Activity Pack.

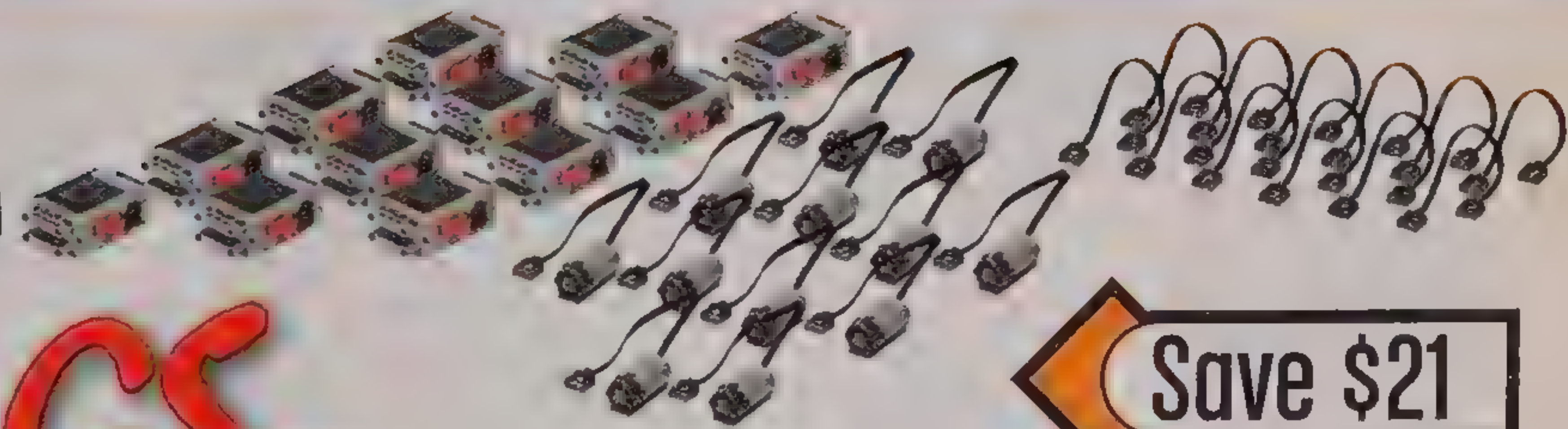
Pre-Robotics
The *Mechanisms Set* is a great tool for preparing students for the engineering and problem-solving challenges they will encounter with LEGO® Education robotics sets and curricula.



EXCLUSIVE

Save \$43

GS
GETTING STARTED



Save \$21

MECHANISMS – GETTING STARTED PACKAGE

Great for an entire class! This pack includes everything needed for a classroom of students working in pairs. The pack includes:

- Z979632 Mechanisms Set (12 sets included in GS package).....\$85.95
- Z979635 Mechanisms Activity Pack.....\$42

Z979638 Mechanisms – Getting Started Package \$1,030

A \$1,073.40 value!

MECHANISMS

MOTOR ADD-ON VALUE PACK

Already have the *Mechanisms Getting Started Package* and know you're ready to bring your models to life? Then this value pack is for you. The pack includes:

Z979628 Mechanisms

Power Add-On Set

(12 motors included

in Value Pack) each.....\$35.95

Z991387—\$410



EXCLUSIVE

Save \$89

GS
GETTING STARTED

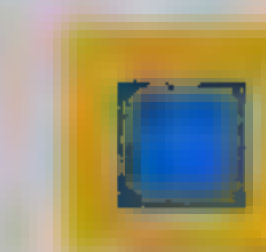
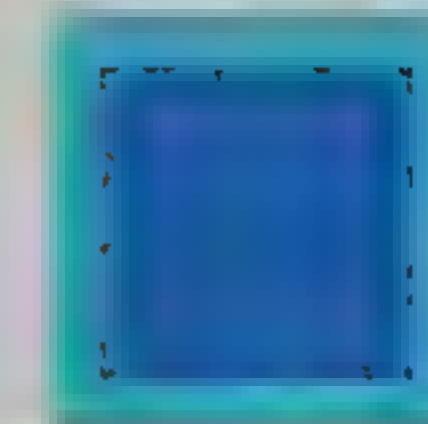
MOTORIZED MECHANISMS – GETTING STARTED PACKAGE

This Getting Started Pack comes with everything you need for a classroom of 24 students working in pairs. The pack includes:

- Z979632 Mechanisms Base Set
(12 sets included in GS package).....\$85.95
- Z979628 Mechanisms Power Add-On Set
(12 sets included in GS package).....\$35.95
- Z979635 Mechanisms Activity Pack.....\$42

Z991386 Motorized Mechanisms – Getting Started Package \$1,415

A \$1,504.80 value!



Motorized Mechanisms Packs

Looking to add more sets to your classroom?
Then these packs are for you.



Save \$50



MOTORIZED MECHANISMS SET 8 PACK

Designed for 16 students working in pairs, the pack includes:

- Z979632 Mechanisms Base Set
(8 sets included).....\$85.95
- Z979628 Mechanisms Power Add-On Set
(8 sets included).....\$35.95

Z991423—\$925



Save \$17



MOTORIZED MECHANISMS SET 4 PACK

Designed for eight students working in pairs, the pack includes:

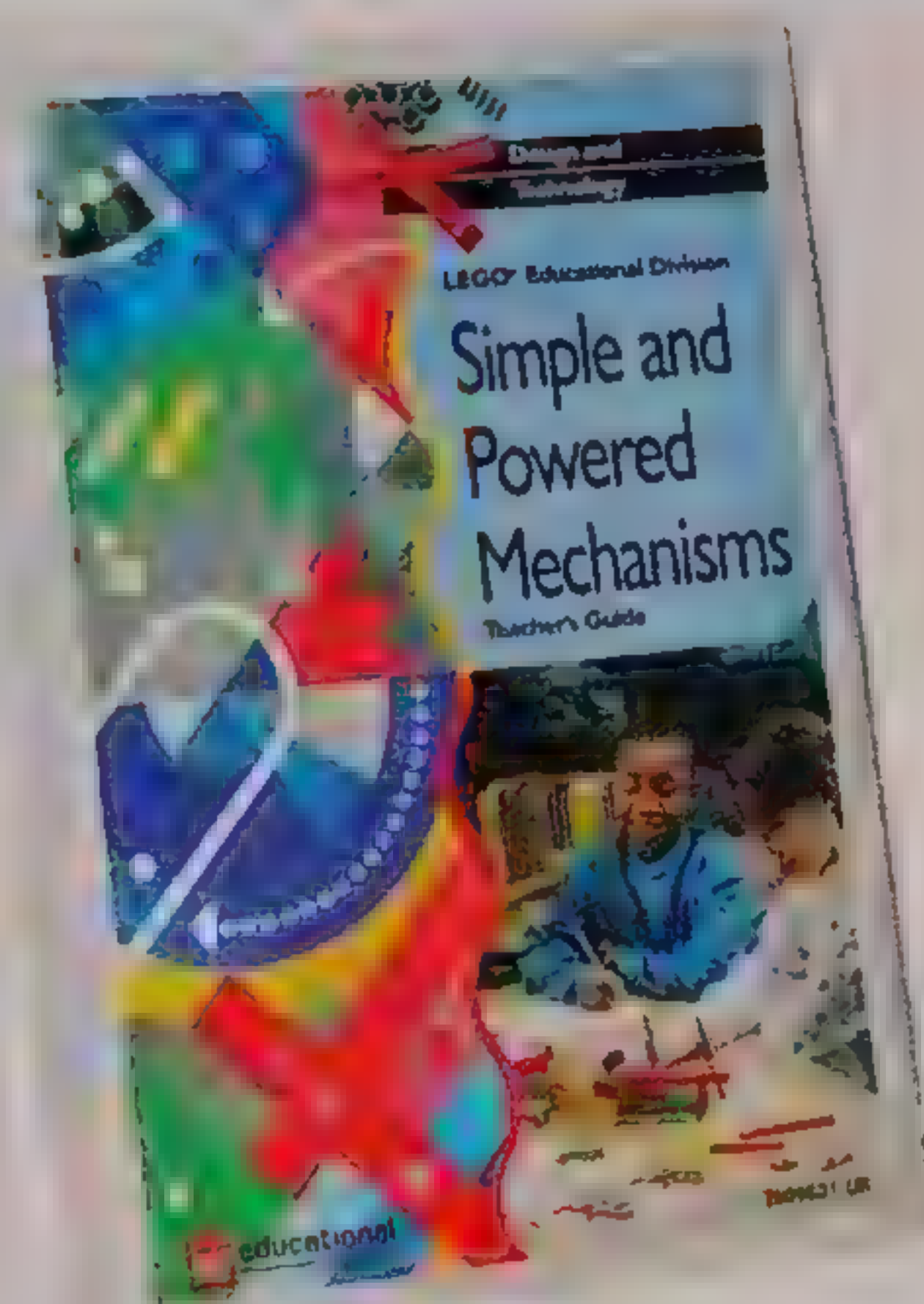
- Z979632 Mechanisms Base Set
(4 sets included).....\$85.95
- Z979628 Mechanisms Power Add-On Set
(4 sets included).....\$35.95

Z991424—\$470

Motorized Simple Machines



EXCLUSIVE



EXCLUSIVE

MOTORIZED SIMPLE MACHINES SET

This 219-element set is a wide-ranging tool for exploring simple machines and adds the concept of motorization. A 9-volt motor enables students to bring their projects to life. Through the building of realistic motorized models, students develop a strong understanding of mechanical principles. The set is designed for students working in pairs. It includes:

- 9-volt motor, battery box, and connecting lead
- Sturdy plastic storage tray with lid for easy classroom cleanup, inventory, and storage
- 8 green cards with building projects for exploration of simple machine concepts
- 10 blue cards for applying simple machine concepts by building models of real-world devices including a folding lawn chair, drawbridge, conveyor belt, turnstile, crane, and more

Z979645—\$112.95

Z979630 Nonmotorized Simple Machines Set—\$83.95

Z979615 9-volt Motor and Battery Box (requires 6 AA batteries, sold separately; battery boxes may vary in color)—\$34.95

Z751046 AA Batteries (pkg of 2)—\$1.50

SIMPLE AND MOTORIZED MACHINES ACTIVITY PACK

This activity pack is designed to provide teachers the materials they need to teach students the principles of simple and motorized machines using the *Motorized Simple Machines Set*. The pack includes:

- An 80-page teacher's guide divided into six progressive units. The guide provides background information, key words and concepts, sample solutions, and ideas for additional activities.
- The 31 worksheet copymasters cover activities that focus on exploring, investigating, and problem solving. Each worksheet is designed to take approximately 45 minutes.

Z979631—\$42



Save \$44

EXCLUSIVE

**GS
GETTING STARTED**

MOTORIZED SIMPLE MACHINES - GETTING STARTED PACKAGE

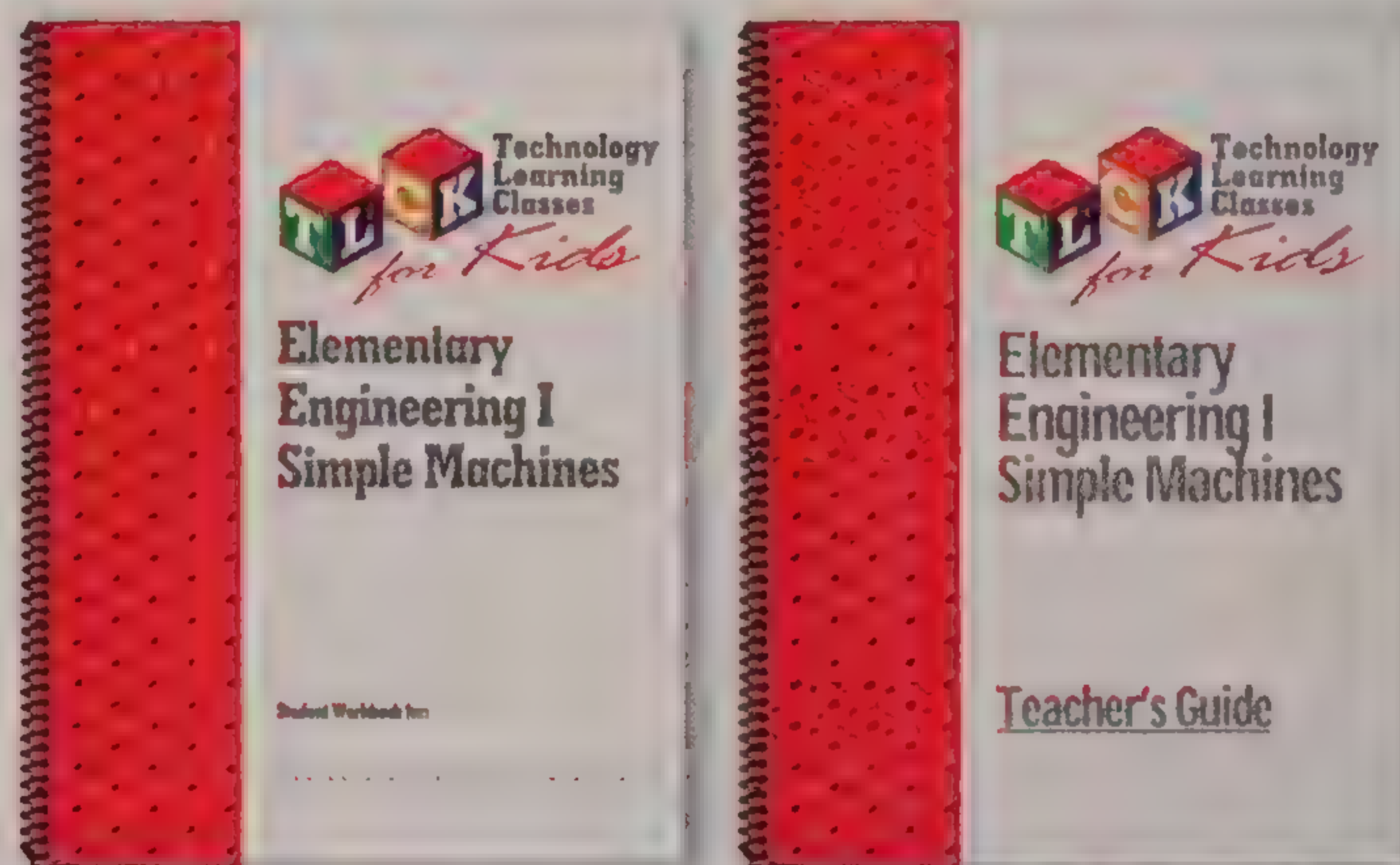
Get your entire class involved with simple machines activities at the same time!

Teaching simple machines concepts couldn't be more fun for both you and your students when you use the LEGO® Education *Motorized Simple Machines Set*. With building cards and bricks to demonstrate moving mechanisms representing all of the simple machines, all of your students will stay motivated and eager to tackle the next project.

This package includes enough building sets and teacher resource materials for a class of 24 students.

- **Z979645 Motorized Simple Machines Sets (12 sets included in GS package) each set\$112.95**
- **Z979631 Simple and Motorized Machines Activity Pack..... \$42**
- **Z757918 Science and Math For Technology.....\$21.95**

**Z991151 Motorized Simple Machines -
GS Package—\$1,375
A \$1,419.35 value!**



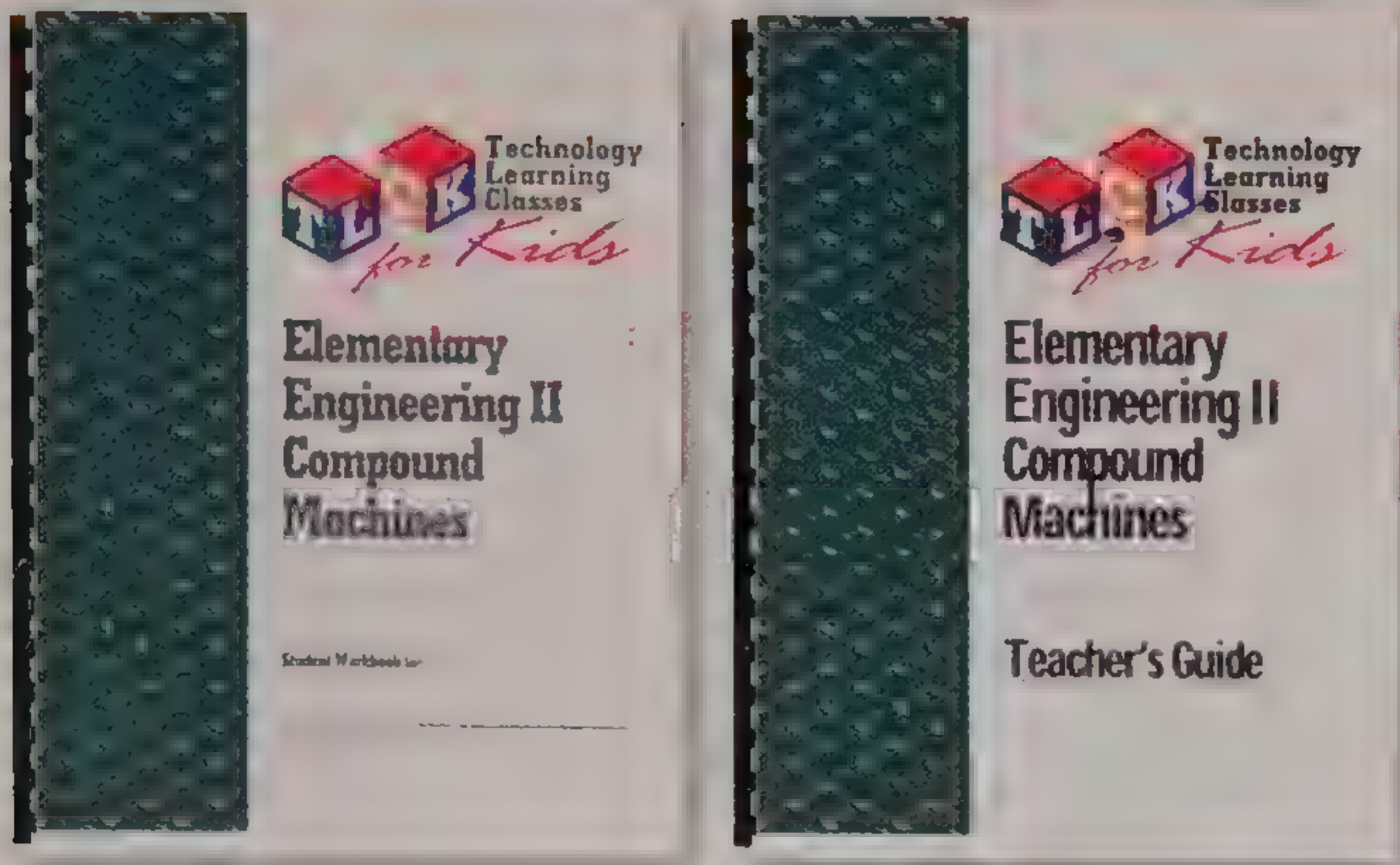
ELEMENTARY ENGINEERING I WORKBOOK AND TEACHER'S GUIDE

The *Elementary Engineering Workbook* and *Teacher Guide* are designed to teach students the basic concepts of simple machines through clear, friendly language and plenty of illustrations and diagrams. With approximately 15 hours of activities, the workbook partners with the LEGO® Education *Motorized Simple Machines Set* to provide a simple machines unit applicable to the classroom. The workbook explains and demonstrates the basic concepts behind structures and forces, levers, wheels and axles, gears, and pulleys and then provides problems to solve that are fun and engaging. The teacher's guide provides objectives for each lesson, offers lesson plans for the activities, and also provides answer keys for all activities in the student workbook.

Z991249 Elementary Engineering I Workbook—\$8

Z991257 Elementary Engineering I Teacher's Guide—\$30

**Z991258 Elementary Engineering I Workbook
Classpack (24 Workbooks)—\$185**



ELEMENTARY ENGINEERING II WORKBOOK AND TEACHER'S GUIDE

Building on the concepts taught in the *Elementary Engineering I* workbook, the *Elementary Engineering II* workbook pushes students to use simple machines in combinations to create more compound machines. Designed for use with the LEGO® Education *Technology Resource Set*, *Elementary Engineering II* offers approximately 12 hours of activities that help students understand various concepts of compound machines, such as pulley systems (multiple pulley systems, ratios, tower cranes) and a car (rack and pinion, transmission, differential gears). The *Elementary Engineering II Teacher's Guide* provides objectives for each lesson, offers lesson plans for the activities, and also provides answer keys for all activities in the student workbook.

Z991313 Elementary Engineering II Workbook—\$8

Z991314 Elementary Engineering II Teacher's Guide—\$30

Z991315 Elementary Engineering II Workbook Classpack (24 workbooks)—\$185

SCIENCE AND MATH FOR TECHNOLOGY

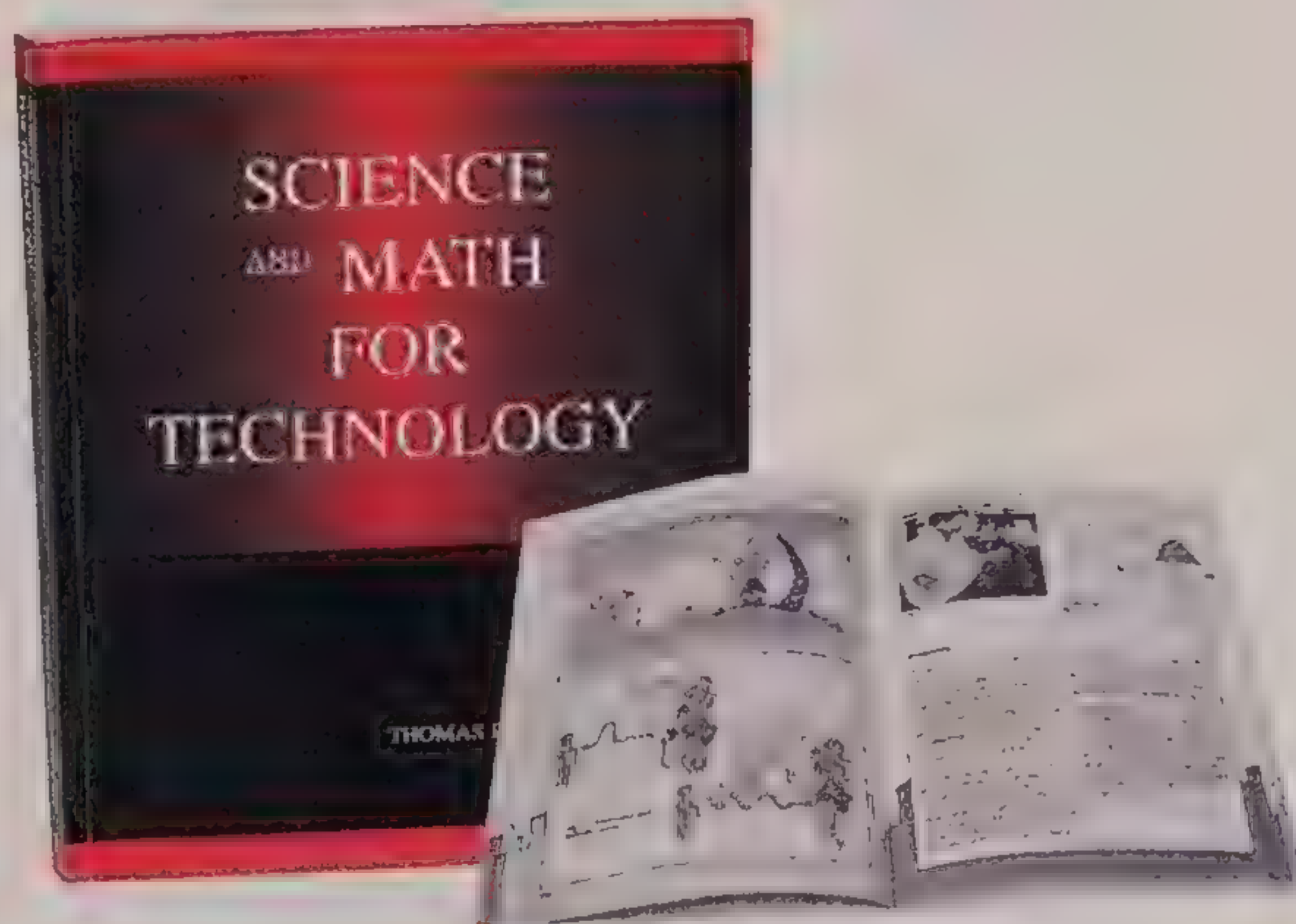
Knowing where to get the information you need is half the battle in problem solving. But, when you need to apply a physical science concept or solve a technology problem, where do you begin? With *Science and Math for Technology*, that's where! An indispensable book for students and teachers, *Science and Math for Technology* organizes information by topic – 12 of them in all, including electricity, motion, power transmission, liquid, gases, and biotechnology – and includes an extensive cross-referenced index so beginning and advanced students can find the information they need in a hurry. Science concepts and math formulas and their relation to technology are explained in easy-to-understand text that is complemented by photographs and unusually descriptive drawings and cartoons.

Whether it is used by an elementary student learning how to conduct research or an advanced student brushing up on a hazy concept, *Science and Math for Technology* is essential for meeting new standards in science, math, and technology education. Paperback, 241 pages.

Level: Elementary-High School

Z757918—\$21.95

24 or more—\$20.60 each



THE BIG PICTURE:

PULLEYS/WHEELS & AXLES TEACHER PACK

Introduce your students to the exciting curriculum from *The Big Picture*! All of the activities in this teacher pack were written for use with the LEGO® Education *Motorized Simple Machines Set*. Your students will study driver and follower pulleys; fixed, moveable, and compound pulleys; pulley wheels and belts; flywheels; axles; inclined planes; and more. The pack includes a comprehensive teacher's guide with notes and explanations, as well as a CD with copymasters of student worksheets.

Z991167—\$49

THE BIG PICTURE:

GEARS/LEVERS TEACHER PACK

Expand the use of your LEGO® Education sets with The Big Picture Teacher Packs! Designed for use with the LEGO Education *Motorized Simple Machines Set*, the *Gears/Levers Teacher Pack* covers the essential simple machines concepts of gearing up, gearing down, compound gears, gear trains, fulcrums, load, force, and classes of levers. Comprehensive teacher notes with original illustrations are included, as well as a CD with copymasters of student worksheets.

Z991168—\$49

BRICK LAYERS II: CREATIVE ENGINEERING WITH LEGO® CONSTRUCTIONS

This book is written to be used along with the LEGO® *Motorized Simple Machines Set*. The activities give students the opportunity to explore areas of mechanical engineering through simple machines and structural engineering as they look at the special properties of certain shapes that make them useful in construction. Paperback, 167 pages. **Level: Intermediate-Middle School**

Z990244—\$39.95



Simple Machines Mini Sets



GEARS MINI SET

Using the two activity cards, students build a merry-go-round and a fan. Both models demonstrate how gears can multiply speed. By counting the number of turns and rotations, students can calculate the gear ratios. *Gears Mini Set* is designed to be used by students working in pairs. This 67-element set includes:

- 2 building cards with step-by-step instructions
- Sturdy plastic storage case with clear compartmentalized tray
- Pictorial parts list to make cleanup and inventory simple

Z779610—\$19.95



LEVERS MINI SET

This 62-element set provides hands-on experience in working with the three classes of levers. Students build two exciting projects and learn important lever concepts. *Levers Mini Set* is designed to be used with students working in pairs. It includes:

- 2 building cards with pictorial instructions
- Sturdy plastic storage case with clear compartmentalized tray
- Pictorial parts list to make cleanup and inventory simple

Z779612—\$19.95



GEARS TEACHER GUIDE

This 20-page paperback guide contains 10 lesson plans, introductory gear activities, and problem-solving activities based on gear concepts. Also contains:

- Photographs of real-world gear devices
- Background information
- Suggested problem solutions
- Assessment ideas

Z779620—\$7



LEVERS TEACHER GUIDE

This 20-page paperback guide contains seven lesson plans, introductory lever activities, and problem-solving activities based on lever concepts. Also contains:

- Photographs of real-world lever devices
- Background information
- Suggested problem solutions
- Assessment ideas

Z779622—\$7



GEARS - GETTING STARTED PACKAGE

This package contains enough materials for 24 students (working in pairs) to discover the basic principles of gears. The package includes:

- Z779610 Gears Mini Set (12 sets included in GS package)..... \$19.95
- Z779620 Gears Teacher Guide \$7

Z779640 Gears - GS Package—\$226

A \$246.40 value!



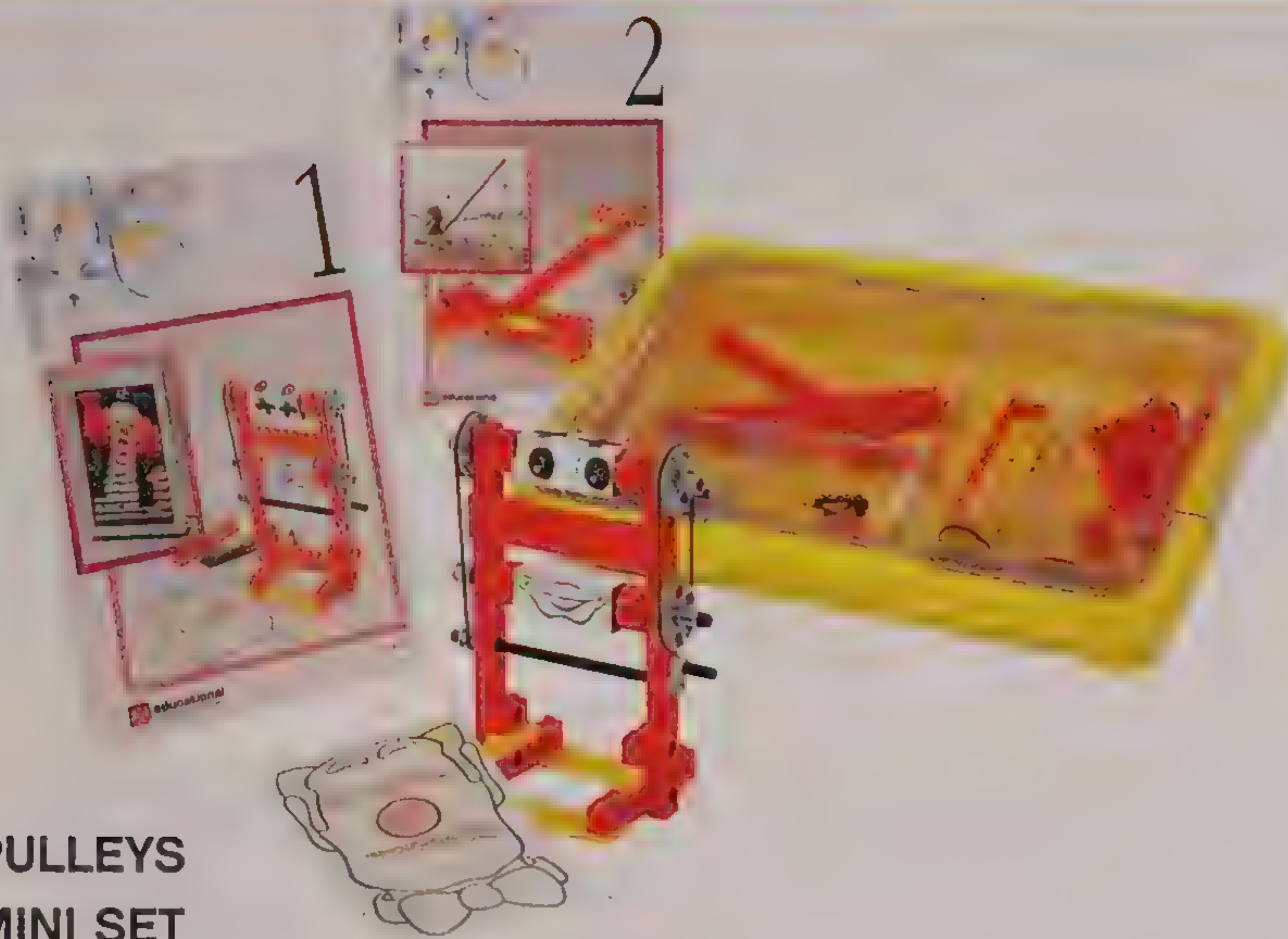
LEVERS - GETTING STARTED PACKAGE

Twenty-four students, working in pairs, can experience hands-on learning about levers with this classroom pack. The package includes:

- Z779612 Levers Mini Set (12 sets included in GS package)..... \$19.95
- Z779622 Levers Teacher Guide \$7

Z779642 Levers - GS Package—\$226

A \$246.40 value!

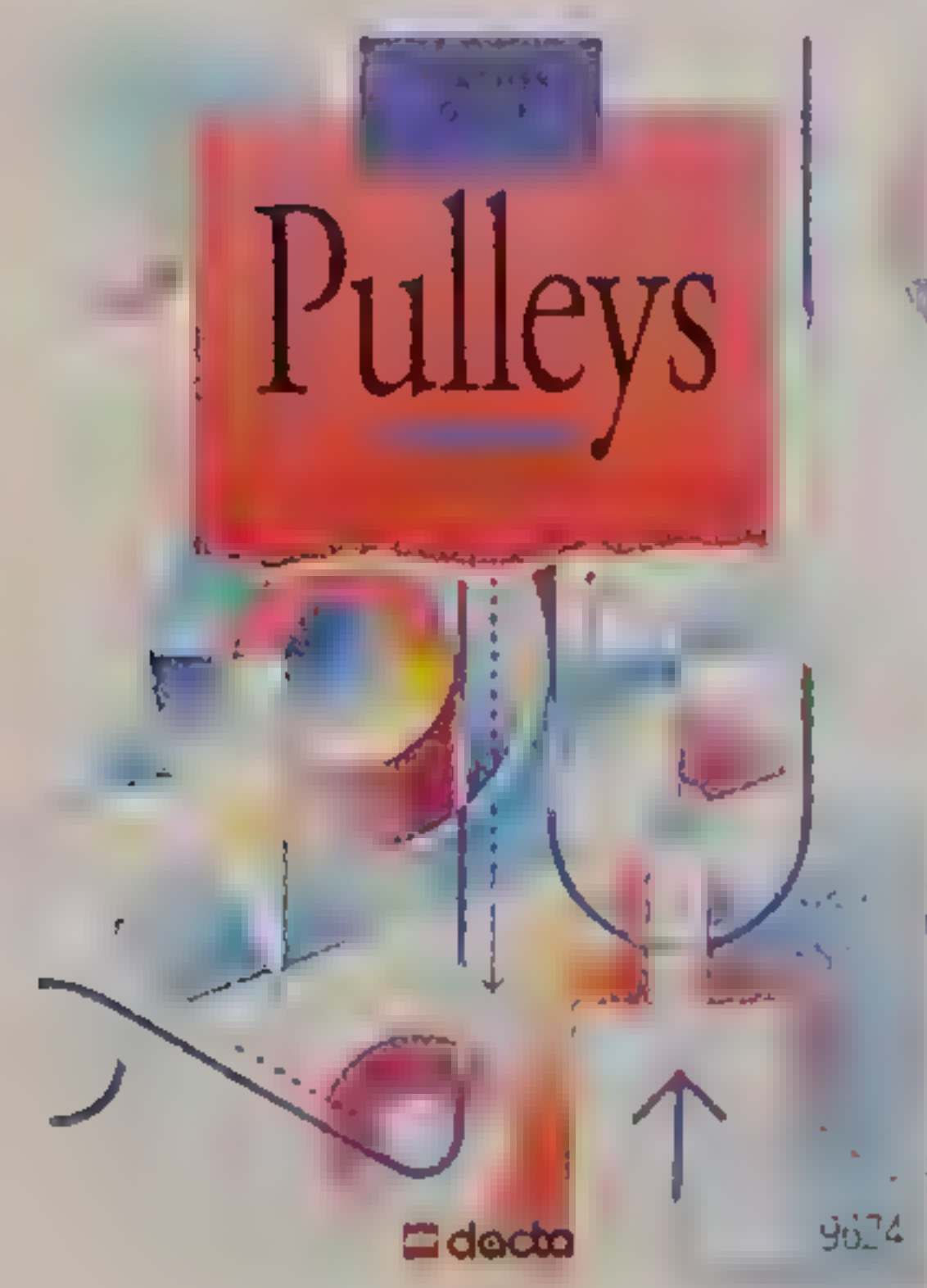


PULLEYS MINI SET

Students build and work with models to investigate fixed and movable pulleys and belt drives. This 75-element set is designed to be used by students working in pairs. It includes:

- 2 building cards with step-by-step instructions
- Sturdy plastic storage case with clear compartmentalized tray
- Pictorial parts list to make cleanup and inventory simple

Z779614—\$19.95



PULLEYS TEACHER GUIDE

This 20-page paperback guide contains 12 lesson plans, introductory pulley activities, and problem-solving activities based on pulley concepts. Also contains:

- Photographs of real-world pulley devices
- Background information for each subject
- Suggested problem solutions
- Assessment ideas

Z779624—\$7

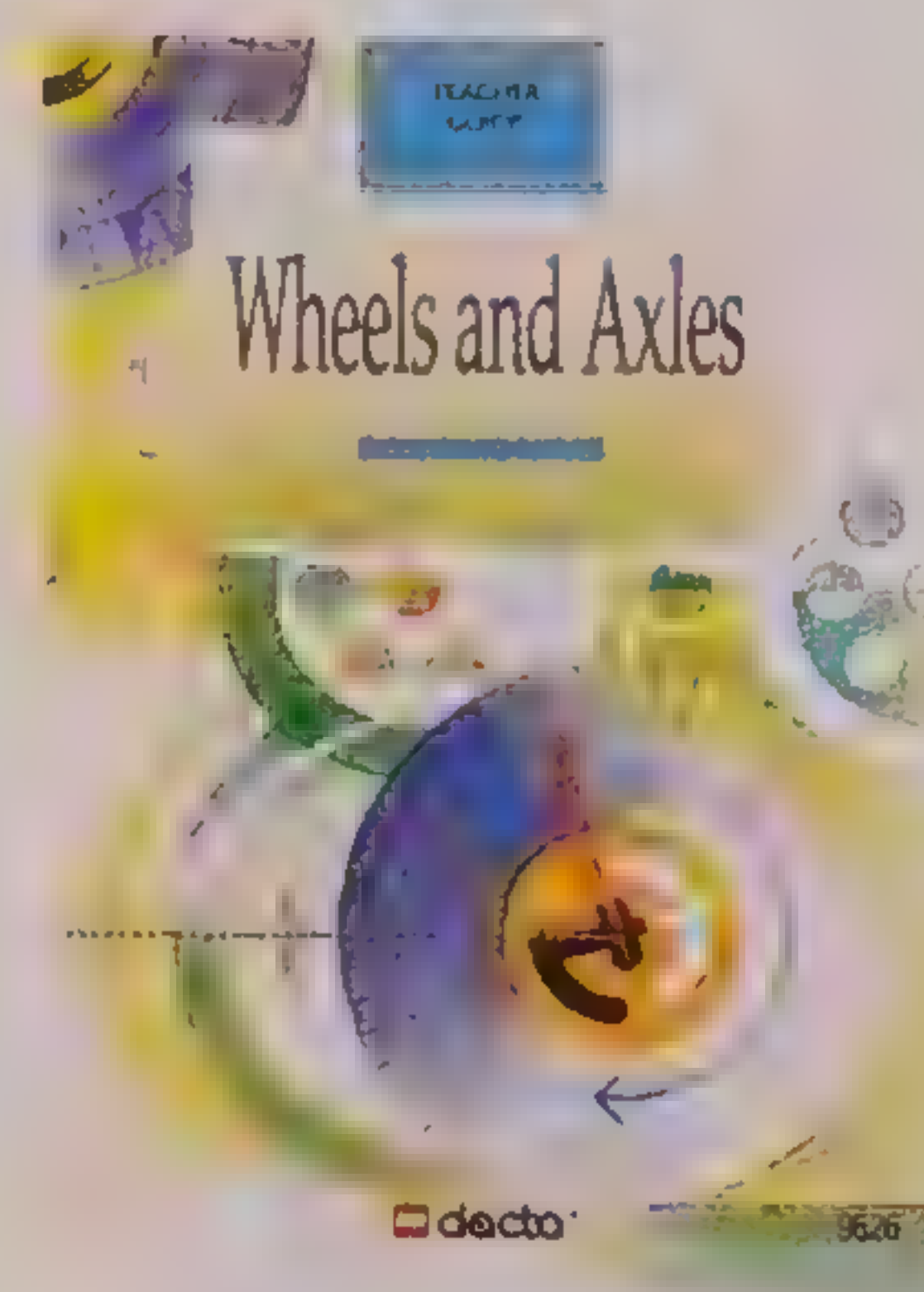


WHEELS AND AXLES MINI SET

This 75-element set provides hands-on learning about single and separate axles, steering, rollers, winch handles, and friction. *Wheels and Axles Mini Set* is designed to be used by students working in pairs. It includes:

- 2 building cards with pictorial instructions
- Sturdy plastic storage case with clear compartmentalized tray
- Pictorial parts list to make cleanup and inventory simple

Z779616—\$19.95



WHEELS AND AXLES TEACHER GUIDE

This 20-page paperback guide contains 10 lesson plans, introductory activities, and problem-solving activities based on wheel and axle concepts. Also contains:

- Photographs of everyday devices that use wheels and axles
- Suggested problem solutions
- Assessment ideas

Z779626—\$7



PULLEYS - GETTING STARTED PACKAGE

This package delivers the hands-on learning of the *Pulleys Mini Set* to the entire class! Serves 24 students working in teams of two. The package includes:

- Z779614 Pulleys Mini Set (12 sets included in GS package).....\$19.95
- Z779624 Pulleys Teacher Guide \$7

Z779644 Pulleys - GS Package—\$226
A \$246.40 value!



WHEELS AND AXLES - GETTING STARTED PACKAGE

Hands-on learning for 24 students (working in pairs) with teacher support materials included in this convenient package. The package includes:

- Z779616 Wheels and Axles Mini Set (12 sets included in GS package).....\$19.95
- Z779626 Wheels and Axles Teacher Guide \$7

Z779646 Wheels and Axles - GS Package—\$226
A \$246.40 value!

Simple Machines

THE NEW WAY THINGS WORK

David Macaulay

The information age is upon us, baffling us with thousands of complicated state-of-the-art technologies. To help make sense of the computer age, David Macaulay has completely updated and expanded his classic book to include the latest innovations in digital technology. *The New Way Things Work* guides us through the complicated world of electronic communications, analog and digital systems, virtual reality, and more, while retaining the award-winning explanations of mechanical movement contained in the original volume. Scores of original drawings illustrate the way machines and mechanisms work and each scientific principle is brilliantly explained with the help of a charming woolly mammoth. Hardcover, 384 pages.

Level: Intermediate-Middle School

Z756435—\$35

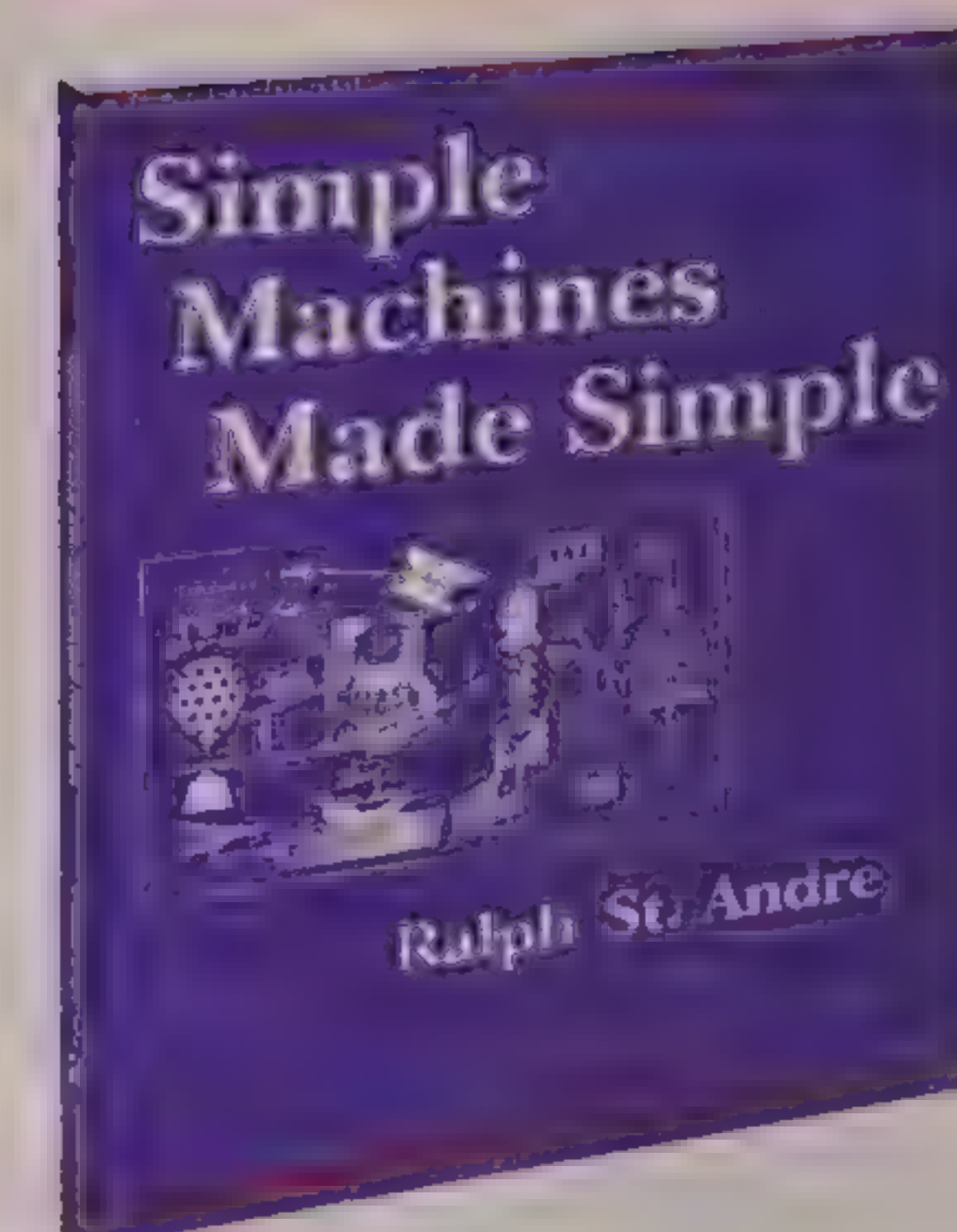


SIMPLE MACHINES MADE SIMPLE

Teach your students essential scientific principles and basic mechanics through hands-on, cooperative learning activities that are not only easy to teach but also inexpensive and fun. As students experiment with gadgets that slide, pivot, turn, rub, and work, they learn why and how machines operate the way they do. Includes illustrated step-by-step instructions, material lists, reproducible activities, assessment sheets, and estimated time required for the activities. Paperback, 150 pages.

Level: Middle School

Z756122—\$25



RUBE GOLDBERG: INVENTIONS

Here they are, more than 100 of the inventions that made Rube Goldberg's name an adjective describing any overly complicated invention, machine, or scheme laboriously contrived to perform a seemingly simple operation. Along the way, *Rube Goldberg: Inventions* also introduces students to the man — a sportswriter turned cartoonist whose work was syndicated worldwide for 65 years and inspired the Olympics of Complexity at Purdue University. See what can happen when technology meets daily life and laugh all over again. Hardback, 191 pages.

Level: Middle School-Adult

Z757881—\$25



TURN ON THE LIGHTS — FROM BED!

Subtitled *Electronic Inventions, Contraptions, & Gadgets Kids Can Build*, this book will stimulate students to invent because these inventions are all things youngsters can use! What kid wouldn't love a remote-controlled laugh track, a "keep-out-of-my-stuff" device to deter nosy siblings, or a device that turns on the lights (and everything else) from bed? All nine activities in this book include step-by-step instructions and a short section describing the science behind the invention. Paperback, 110 pages.

Level: Intermediate-Middle School

Z756938—\$14.95

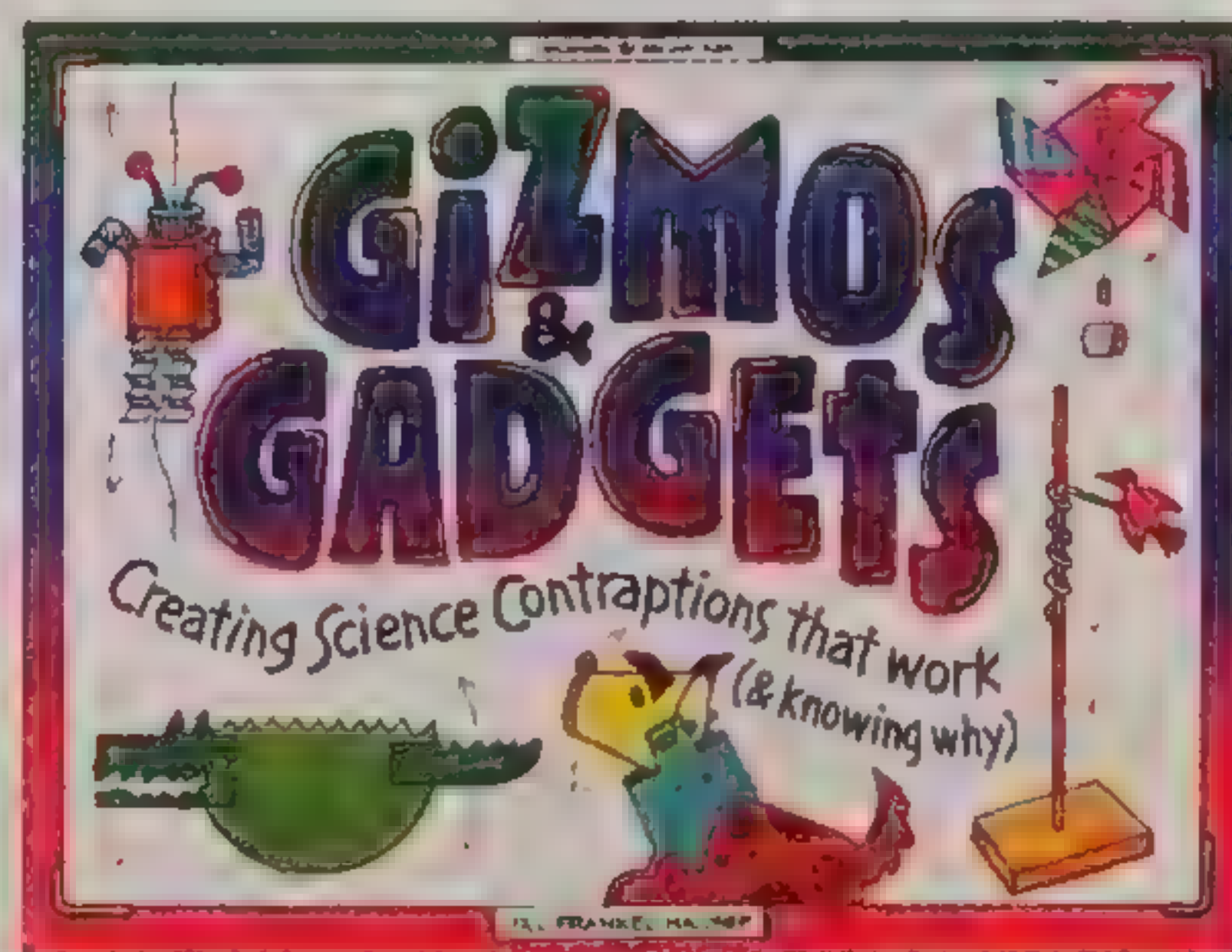


GIZMOS & GADGETS

Gizmos & Gadgets provides instructions for making 75 contraptions that demonstrate friction, gravity, energy, motion, and other principles of physics. Paperback, 144 pages.

Level: Early Learning-Middle School

Z757704—\$12.95



CRAZY ACTION CONTRAPTIONS

A LEGO® inventions book! With this zany project book and 60-piece set, kids are certain to have a blast inventing, tinkering, and watching in amazement as their contraptions jump into action.

Using LEGO Technic elements, they'll assemble five wacky and fun devices that really work — the Never-Look-Back-Machine, Coat Hanger Daredevil, Skittle Tops, 9-Foot Rubber Band Racer, and Balloon-Powered Rocket Car. With a few additional LEGO elements, they can assemble five more contraptions. The kid-friendly paperback book has 64 full-color pages. Ages 7+.

Z756183—\$19.95



THE SIMPLE MACHINE AND WORK VIDEOS

This set of three videos covers the six simple machines and the concepts of energy and work. Simple explanations and clear diagrams are made memorable by the antics of a cartoon Neanderthal who demonstrates the use of each type of machine. The set includes two teacher's guides that give explanations and review questions with answers. Time: 15 minutes each.

Level: Intermediate-High School

Z990213 VHS—\$179



THE INCLINED PLANE
Z756051—\$8.95



THE LEVER
Z756055—\$8.95



THE PULLEY
Z756052—\$8.95



THE SCREW
Z756053—\$8.95



THE WEDGE
Z756054—\$8.95



THE WHEEL
Z756050—\$8.95

SIMPLE MACHINES POSTERS

This series of five posters is an excellent addition to any technology classroom. Includes *The Inclined Plane*, *The Lever*, *The Pulley*, *The Screw*, *The Wedge*, and *The Wheel*. Size: 17" x 22".

Z757711 Simple Machines Posters (set of 6)—\$49.95

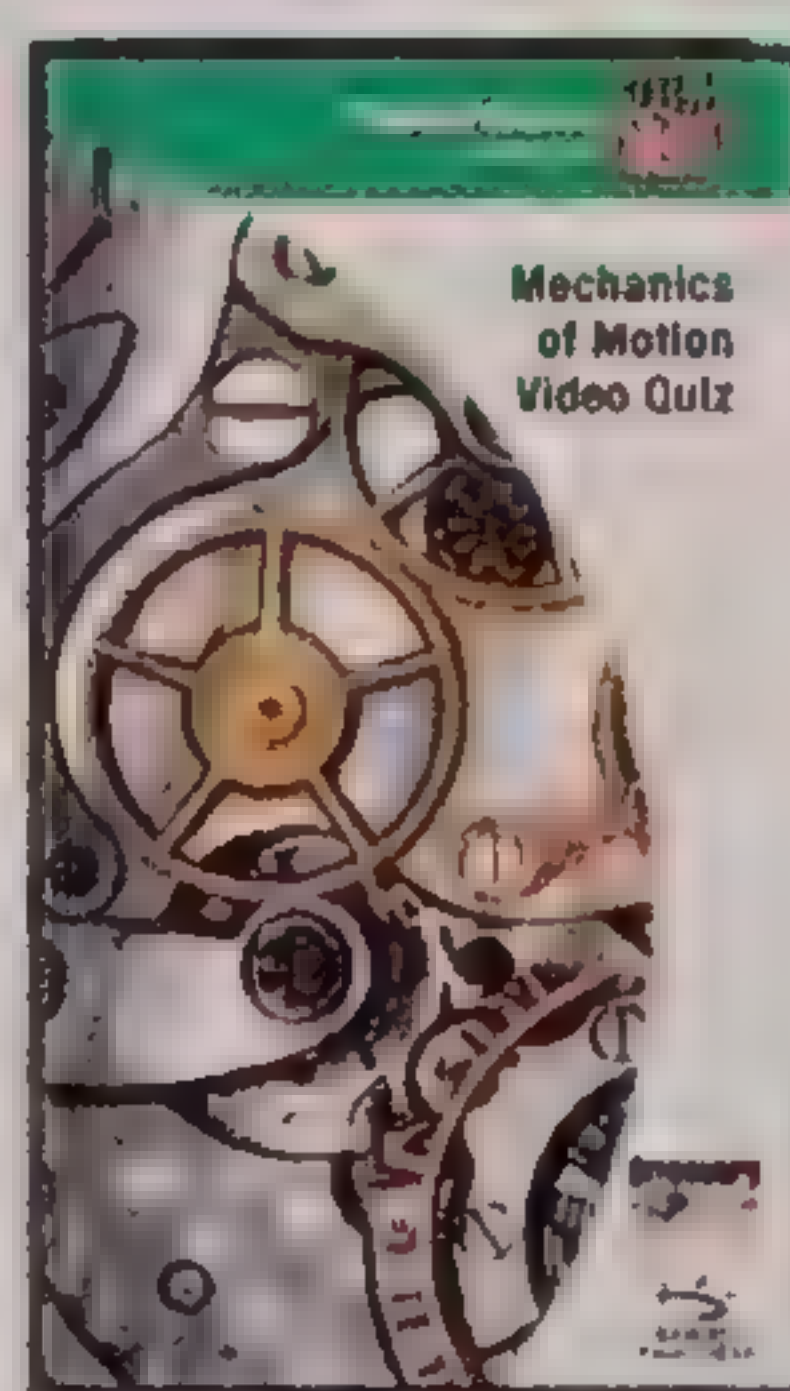
DISCOVERY SCHOOL

MECHANICS OF MOTION VIDEO QUIZ

Teach students about motion and mechanisms using this interactive quiz DVD! The video quiz features five topics, each introduced with a short video segment. Four quiz questions and answers follow each segment. The video quiz includes a bonus DVD with vocabulary, discussion topics, activities, and fun facts. Time: 26 minutes.

Level: Intermediate-High School

Z759421 DVD—\$49.95



ALL ABOUT SIMPLE MACHINES VIDEO

Can you imagine what life was like in ancient times when people had to use their hands to do everything? Take a look around today and you'll find a tool for almost everything that needs to be done, making our everyday chores much easier. In this video, the six basic simple machines that make up many of today's products are examined, including the lever, wheel and axle, pulley, inclined plane, screw, and wedge. This video is full of simple demonstrations that teach students the basic concepts of properties of matter, forces and gravity, light, sound, and flight. Includes a hands-on activity that enables kids to test these ideas themselves by using an ordinary seesaw. Time: 23 minutes.

Level: Early Childhood-Intermediate School

Z990982 VHS—\$33



THE ART OF THE CATAPULT

If your students were intrigued by the trebuchets in the *Lord of the Rings* movie, this book is sure to be a hit with them! It not only details the history of such devices but also provides instructions to make them! From Alexander the Great's Catapult to John Crabbes' ship-mounted catapults, *The Art of the Catapult* really attacks the science and history of this amazing weapon. Paperback, 172 pages.

Level: Middle School-High School

Z759218—\$16.95



MEDIEVAL SIEGE VIDEO

Catapult yourself into the chaos of medieval battle as NOVA describes some of the major weapons and strategies used in what became a medieval arms race. Discover how a fearsome, gravity-powered, missile-throwing catapult called the "Warwolf" became the fourteenth century's version of the atom bomb. Enter gigantic medieval castles and explore why these mighty fortresses became vulnerable. Retreat to the Scottish countryside to watch as modern-day teams build two trebuchet designs using medieval building techniques. Will either design be capable of destroying a model castle wall from a distance of 200 yards? Find out when you watch *Medieval Siege*. Time: 60 minutes.

Level: High School-Adult

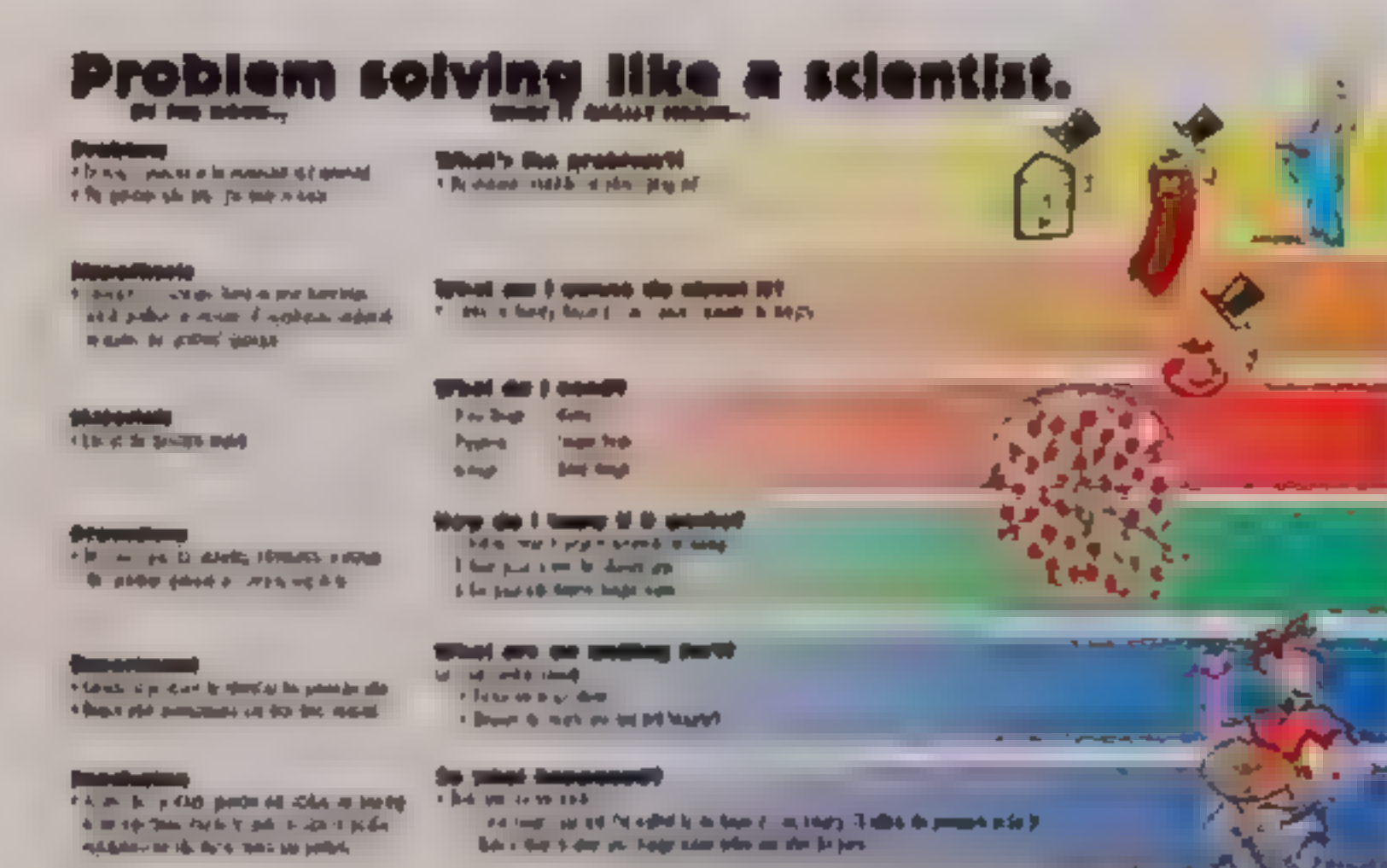
Z757921 VHS—\$19.95



INVENTIONS THAT CHANGED THE WORLD POSTERS

These 12 posters are designed not only to depict important inventions, but also to teach something about how the inventing process works and how certain inventions have altered the course of human history. Each poster is 17" x 22".

Z756248 12-Poster Set with Teacher's Guide—\$44.95



PITSCO PROBLEM-SOLVING POSTER

Bet you never knew pizza could be part of the scientific problem-solving process. This clever chart clearly and concisely describes each step of the process and relates it to something with which every student is familiar – eating a pizza! Size: 11" x 17".

Z756194—\$2.95



Trebuchet

EXCLUSIVE

PITSCO TREBUCHET KIT

Treb·u·chet: (tre-bu-chet) a fifteenth-century military engine used for hurling heavy weapons and rocks.

With the Pitsco *Trebuchet Kit*, you'll be experiencing the thrill of flinging projectiles like those medieval machines – focusing on height, velocity, and distance rather than on knocking down the enemy's fortress.

Students can alter characteristics of the trebuchet – the mass of the clay, the string length, or the amount of the counterweight – and can see how the results are affected. Students also see these concepts in action: levers, inertia, counterweights, friction, and more.

The kit is great for small groups of students and includes all materials for construction including a punch-out basswood body plate, supplies for the catapult sling, and pieces for the launcher arm. Clay and mass plates sold separately.

Z726635—\$10.95

PITSCO TREBUCHET CLASS PACK

Includes enough materials for 25 students.

Z727013—\$225

MASS PLATES

Z758676 (pkg of 20)—\$3.50

KLEAN KLAY

Makes great projectiles.

Z753748 Blue, 1 lb—\$2.45

TREBUCHETS GETTING STARTED

TEACHER'S GUIDE

Wage war on dull curricula! This *Getting Started Teacher's Guide* leads the charge of teaching how projectile mass affects distance and trajectory achieved, how much potential energy a given trebuchet has, how to engineer a trebuchet to hit a given target, and more!

The *Trebuchets GS Teacher's Guide* contains ITEA, NCTM, and NSTA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 92 pages.

Level: Middle School-High School

Z759611—\$24.95

PITSCO DR. ZOON TREBUCHET VIDEO

Look out! Dr. Zoon is about to hurl – a projectile!

During medieval times, the weapon of choice was a sophisticated offshoot of the simple catapult, the trebuchet. It used a large mass, the force of gravity, a mechanically advantaged lever arm, and angular acceleration to hurl large stones long distances.

If it all makes your stomach a little queasy, let Dr. Zoon guide you through the science and technology of the machine as he constructs the Pitsco *Trebuchet Kit*. Closed-captioned. Time: 24 minutes.

Level: Middle School-High School

Z758926 VHS—\$24.95

Z759705 DVD—\$24.95

See the Trebuchet in action!
Visit www.shop-pitsco.com/trebuchet

PITSCO
LEADERS IN EDUCATION

Save \$35



EXCLUSIVE

PITSCO TREBUCHET – GETTING STARTED PACKAGE

You want your students to learn *and* have a good time in the classroom, and our new *Trebuchet – GS Package* is a kit that meets both objectives. As your students put together their trebuchets, they are absorbing lessons about inertia, counterweights, friction, and velocity. But they're also having a great time – there's not many activities that give them an excuse to fling projectiles (the included clay) from one side of the room to the other!

The *Trebuchet – GS Package* includes the following products that can also be ordered individually:

- Z727013 Trebuchet Class Pack.....\$225
- Z758926 Dr. Zoon Trebuchet Video.....\$24.95
- Z757630 Construct a Catapult Book.....\$26.75
- Z753748 Package of Klean Klay.....\$2.45
- Z758676 Mass Plates (pkg of 20) (10 pkgs per GS package) each pkg.....\$3.50

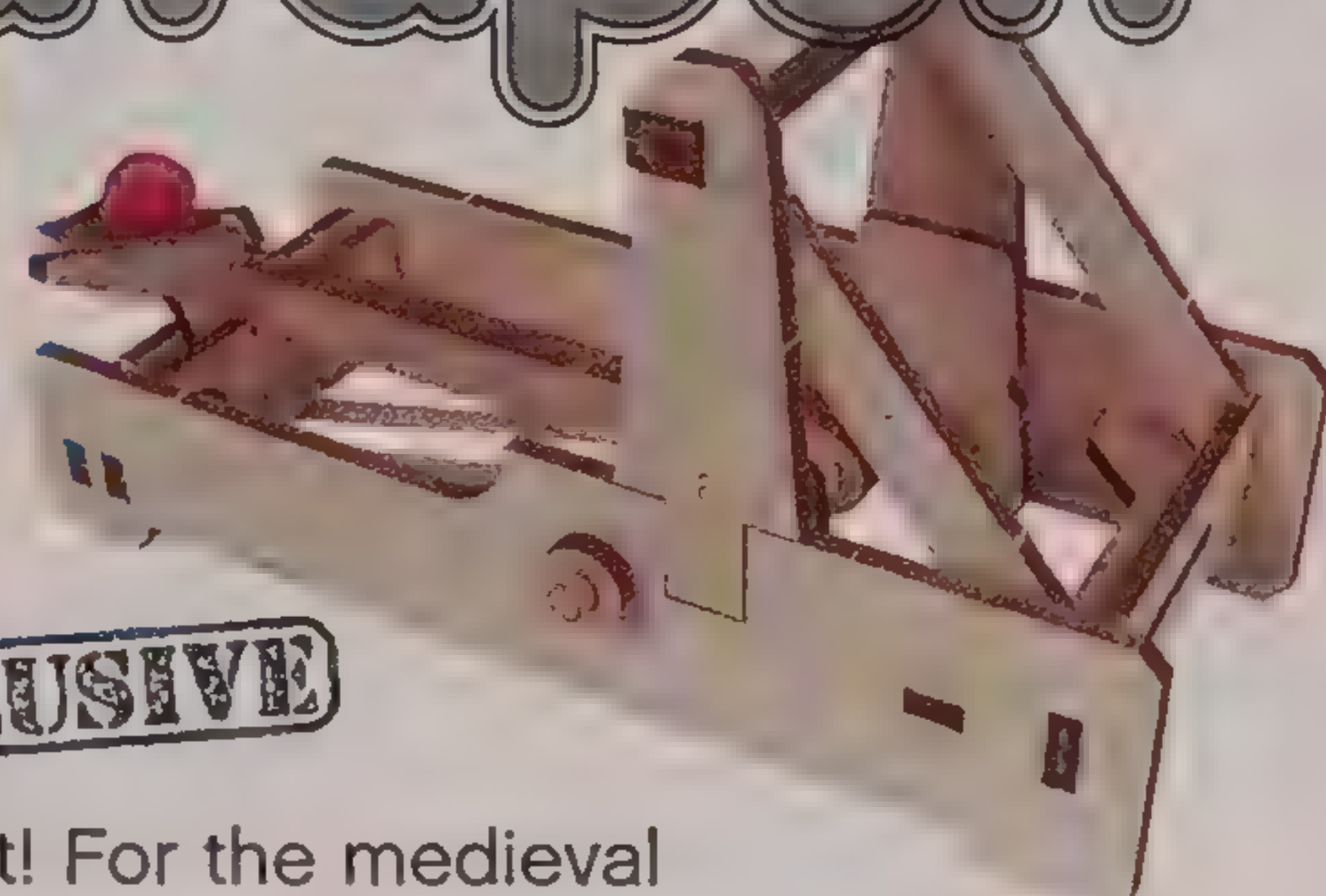
Z727135 Trebuchet – GS Package—\$279

A \$314.15 value!





Catapult


EXCLUSIVE

PITSCO CATAPULT KIT

Feeling some tension? Perfect! For the medieval catapult, stored tension equals the power of projectile motion – which now equals awesome learning power!

Build and use this snappy kit to demonstrate:

- Forces and motion
- Vectors
- Trajectory
- Potential and kinetic energy
- Simple machines
- Medieval history

Plus, students can further develop math, physics, and problem-solving skills by experimenting with the catapult to reach different distances with varying weights of ammunition (pieces of clay). Going back to the dark ages has never been so enlightening! Clay included.

Z759468—\$10.95

PITSCO
LEADERS IN EDUCATION

See the Catapult in action!
Visit www.shop-pitsco.com/catapult


EXCLUSIVE
Save \$27

GS
GETTING STARTED

PITSCO CATAPULT – GETTING STARTED PACKAGE

Alexander the Great used them. Richard the Lionheart used them. Now, you can use the *Catapult Kit* to overthrow lackluster activities in the classroom!

This Getting Started package provides enough materials for 25 students to build and experiment with their own rubber band-powered catapults. Students discover the effect of various load masses and different rubber bands as they also learn about tension, forces, data graphing, and other concepts.

The *Catapults – GS Package* includes the following products that can also be ordered individually:

- **Z731723 Catapult Class Pack**.....\$246.50
- **Z759466 Siege Machines Book**.....\$3.95
- **Z754618 HD Bond Adhesive (5 two-ounce bottles included in the GS package) each bottle**.....\$1.95
- **Z759456 Glue Applicator Tip (5 tips included in the GS package) each tip**.....\$1.75
- **Z733083 Catapults Video**.....\$24.95
- **Z727137 Target Pieces (pkg of 100) (2 packages included in the GS package) each pkg**.....\$1.95

Z733084 Catapults – GS Package—\$270

A \$297.90 value!

PITSCO CATAPULT CLASS PACK

We didn't miss a thing: this pack includes all the parts and pieces for your class to construct 25 catapults. Let the flinging begin!

Z731723—\$246.50

PITSCO CATAPULTS VIDEO

With Pitsco's *Catapults* activity, tension should be in the rubber band – not in your classroom! So make building this kit a fun fling with the *Catapults Video*.

Follow along with the step-by-step instructions that will have your students' catapults built and operating in no time. Along the way, students learn about torsion and other types of energy, laws of physics, projectile motion, and the history of siege machines. Closed-captioned. Time: 18 minutes.

Level: *Middle School-High School*

Z733083 VHS—\$24.95

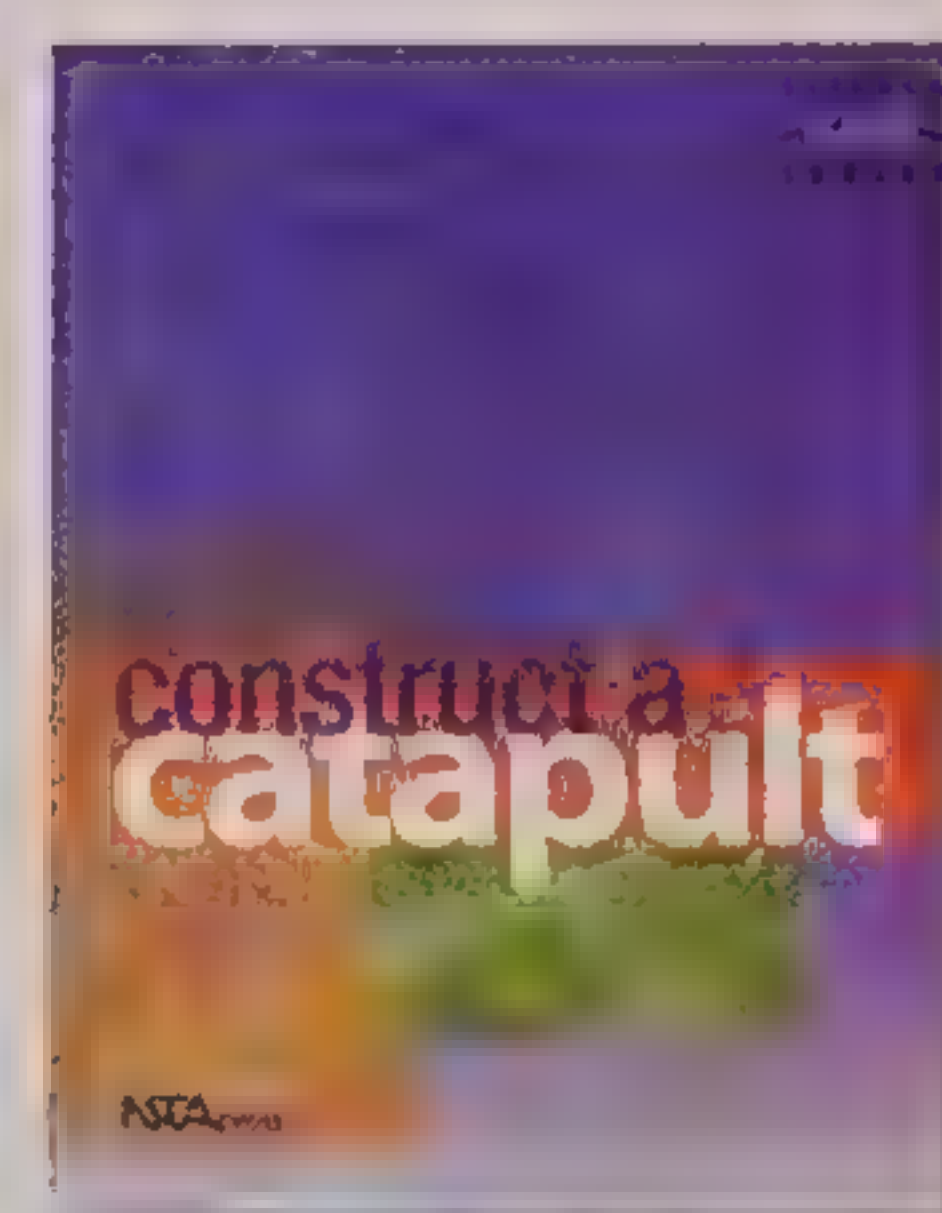
Z733030 DVD—\$24.95

CONSTRUCT A CATAPULT

Construct a Catapult integrates history, physics, mathematics, and technology as students design and build a working catapult. Students investigate elasticity and projectile launching and learn about frequency distribution while working through the process. Paperback, 96 pages.

Level: *High School*

Z757630—\$26.75



PITSCO SIEGE MACHINES

From *Monty Python and the Quest for the Holy Grail* to *The Lord of the Rings*, we are fascinated by the devices used in medieval times. Now, use that fascination to teach students math, science, and problem solving. This book details the history of the medieval siege machines and then focuses on the math and science required in building and using catapults and trebuchets. Includes instructions for assembling the Pitsco *Catapult Kit* and *Trebuchet Kit* as well as national standards met by the book's activities. Paperback, 32 pages.

Level: *Middle School-High School*

Z759466—\$3.95



CATAPULTS GETTING STARTED TEACHER'S GUIDE

Blow the dust off the historical catapult – because this flinging device is loaded and ready to deliver educational content to your classroom! This guide throws itself into subjects such as Newton's laws, projectile motion, simple machines, speed, and mass – all while your students build and test the fun catapult.

The *Catapults GS Teacher's Guide* contains NSTA, NCTM, ITEA, and NCTE standards addressed, teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback. 96 pages.

Level: *Middle School-High School*

Z991325—\$24.95



EXCLUSIVE

PITSCO CRANE KIT



Give students an advantage – an understanding of the mechanical advantage inherent in cranes!

Simple machines such as pulleys, wheels and axles, and levers work together to help move heavy loads – these machines helped build the world as we know it. Featuring laser-cut parts, this *Crane Kit* can be built easily – students quickly move on to experimenting with load, ballast, and other concepts.

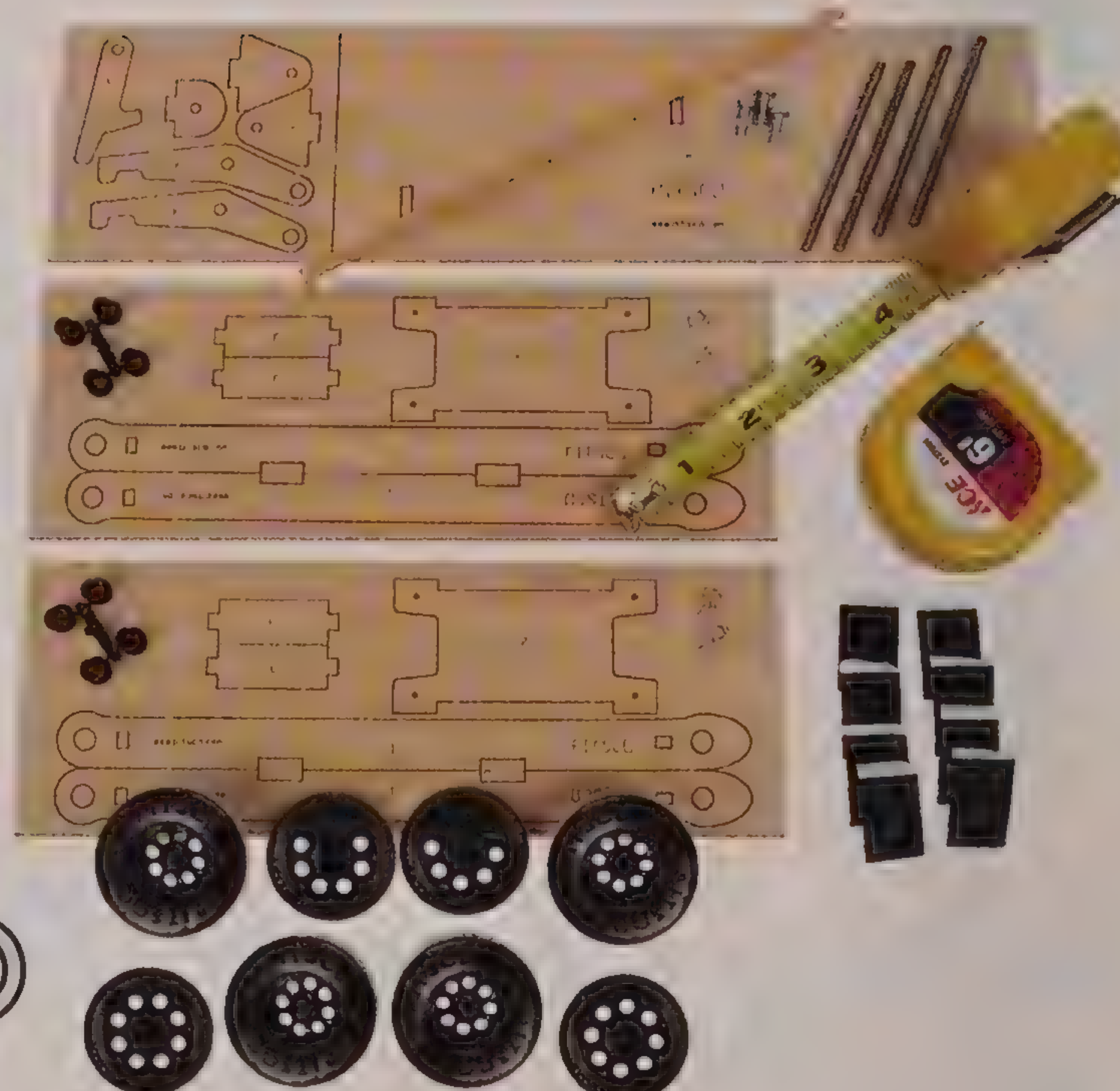
Includes basswood parts, string, hardware, and a user guide. Requires a small Phillips screwdriver and white glue, such as *HD Bond Adhesive*, sold separately.

Z732869—\$19.95

Crane



TOOLBOX Racer



EXCLUSIVE

PITSCO TOOLBOX RACER STARTER PACKAGE



Measure twice, race once!

This package provides what you need to build and race two *Toolbox Racers* – a great way to bring a fun experiment into the classroom. Includes two *Toolbox Racer Kits*, two tape measures, and one *Start Gate*. Requires construction glue, such as *HD Bond Adhesive*, sold separately.

Z733099—\$29.95

PITSCO TOOLBOX RACER START GATE



This start gate rules when you need to race two *Toolbox Racers* side by side! Featuring simple construction with laser-cut basswood parts and hardware, this start gate goes together easily to get you racing in no time! Requires construction glue, such as *HD Bond Adhesive*, sold separately.

Z733053—\$4.95

PITSCO TOOLBOX RACER KIT



For a fun classroom activity that really measures up, check out the *Toolbox Racer Kit*. It goes the distance!

Powered by the toolbox's favorite occupant – the tape measure – this racer is quick and simple to build. Yet it demonstrates the elastic potential energy of the tape measure's spring – and gets students excited about learning! Plus, the *Toolbox Racer* encourages experimentation as students can change out the 6' tape measure with bigger ones.

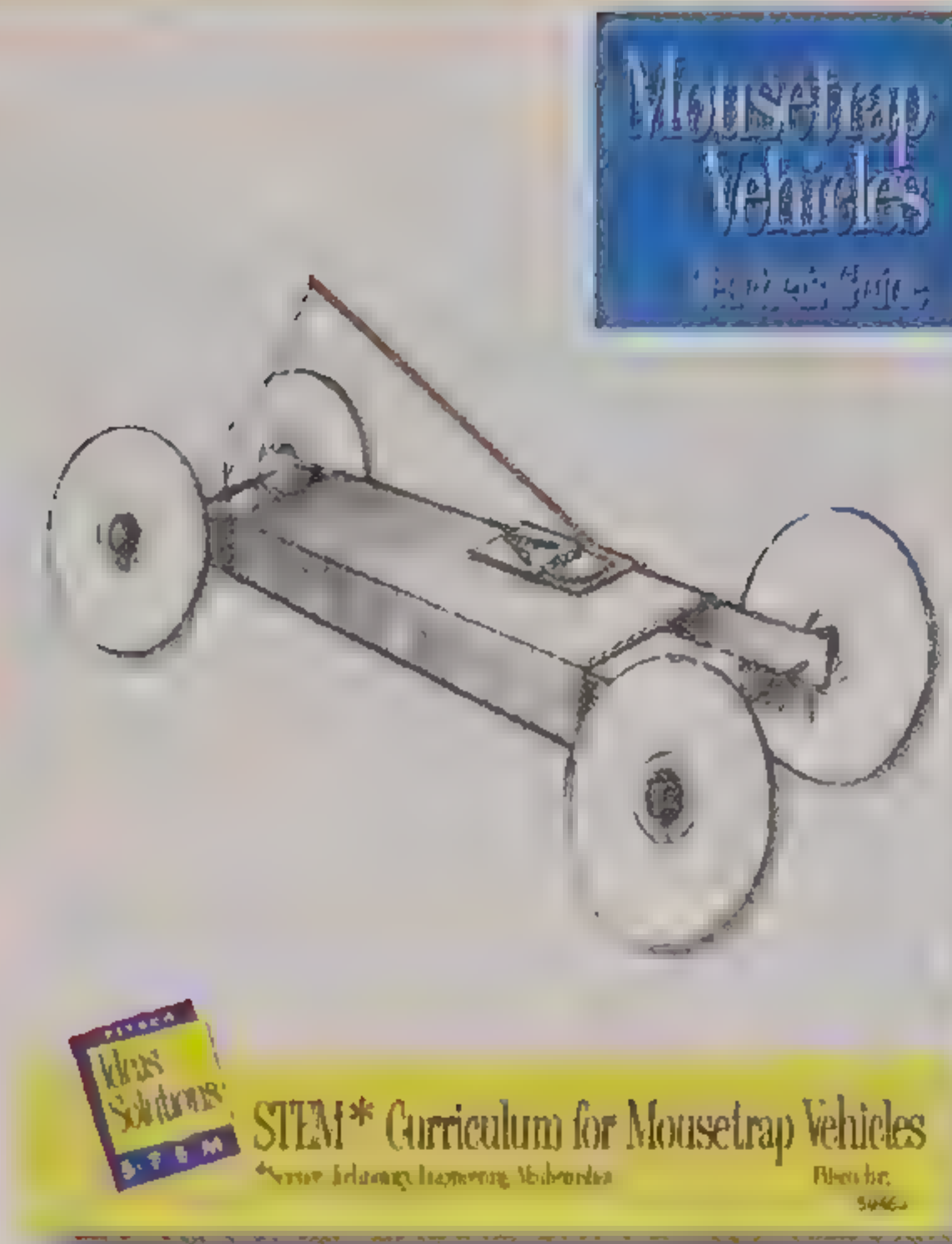
The racing setup is also simple – just tape and string. Includes the laser-cut basswood parts and hardware to build the car body. Requires a tape measure – we recommend the 6' tape measure – and duct tape, both sold separately.

Z733049—\$5.95

Z750394 Tape Measure (6')—\$6.95

10 or more—\$6.25 each

Z753760 Duct Tape—\$5.95



MOUSETRAP VEHICLES

GETTING STARTED TEACHER'S GUIDE

Examine, alter, design, and experiment with mousetrap vehicles to understand velocity, potential and kinetic energy, acceleration, speed, circumference, distance – there's more potential in this guide than just potential energy!

The *Mousetrap Vehicles GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 96 pages. Level: Middle School-High School

Z759463—\$24.95



PITSCO MOUSETRAP VEHICLES – GETTING STARTED PACKAGE

Hands-on excitement at the max! This Getting Started package provides an easy way for 30 students to get the mousetrap vehicle activity rolling in your classroom. Students experience simple machines and other physics principles through the design and construction of a vehicle powered only by an ordinary mousetrap. Includes everything shown above and listed individually in the GS package.

The *Mousetrap Vehicles – GS Package* includes the following products that can also be ordered individually:

- Z757035 Mousetrap Cars Class Pack (for 30 students)\$299
- Z757232 Dr. Zoon Mousetrap Vehicle Video\$24.95
- Z756632 Torsion Wheel\$25.95
- Z754575 Tubing Cutter\$6.95
- Z756215 Insta-Cure+ Glue\$4.95
- Z758606 Dry Powder Graphite (2 tubes included in the GS package) each.... \$1.50

Z723614 Mousetrap Vehicles – GS Package—\$335

A \$364.80 value!



PITSCO DR. ZOON MOUSETRAP VEHICLE VIDEO

Building mousetrap vehicles can be a snap. Ouch! Time to go to the doctor – Dr. Zoon, that is!

All foolishness aside, there's a lot of energy in a mousetrap, and Dr. Zoon can show you how to harness it and propel a mousetrap vehicle.

This is problem solving at its best, with step-by-step help from Dr. Zoon! Closed-captioned. Time: 26 minutes.

Level: Middle School-High School

Z757232 VHS—\$24.95

Z759639 DVD—\$24.95

Mousetrap Vehicles



PITSCO MAGNETIC MOUSETRAP VEHICLE KIT

This mousetrap car really rolls thanks to its almost friction-free magnetic axle assembly. The secret? Tiny magnets embedded in the chassis hold the point of the steel axle in place. The result? Axles attach to the chassis as if by magic without pressure or friction. When a magnetic car races against a standard mousetrap vehicle, your students will see the effect of friction on speed and distance measurements.

Z724641—\$12.95

PITSCO MAGNETIC MOUSETRAP VEHICLE CLASS PACK

Educational fun for an entire class! Our *Class Pack* includes enough materials for 25 students to build their own *Magnetic Mousetrap Vehicles*.

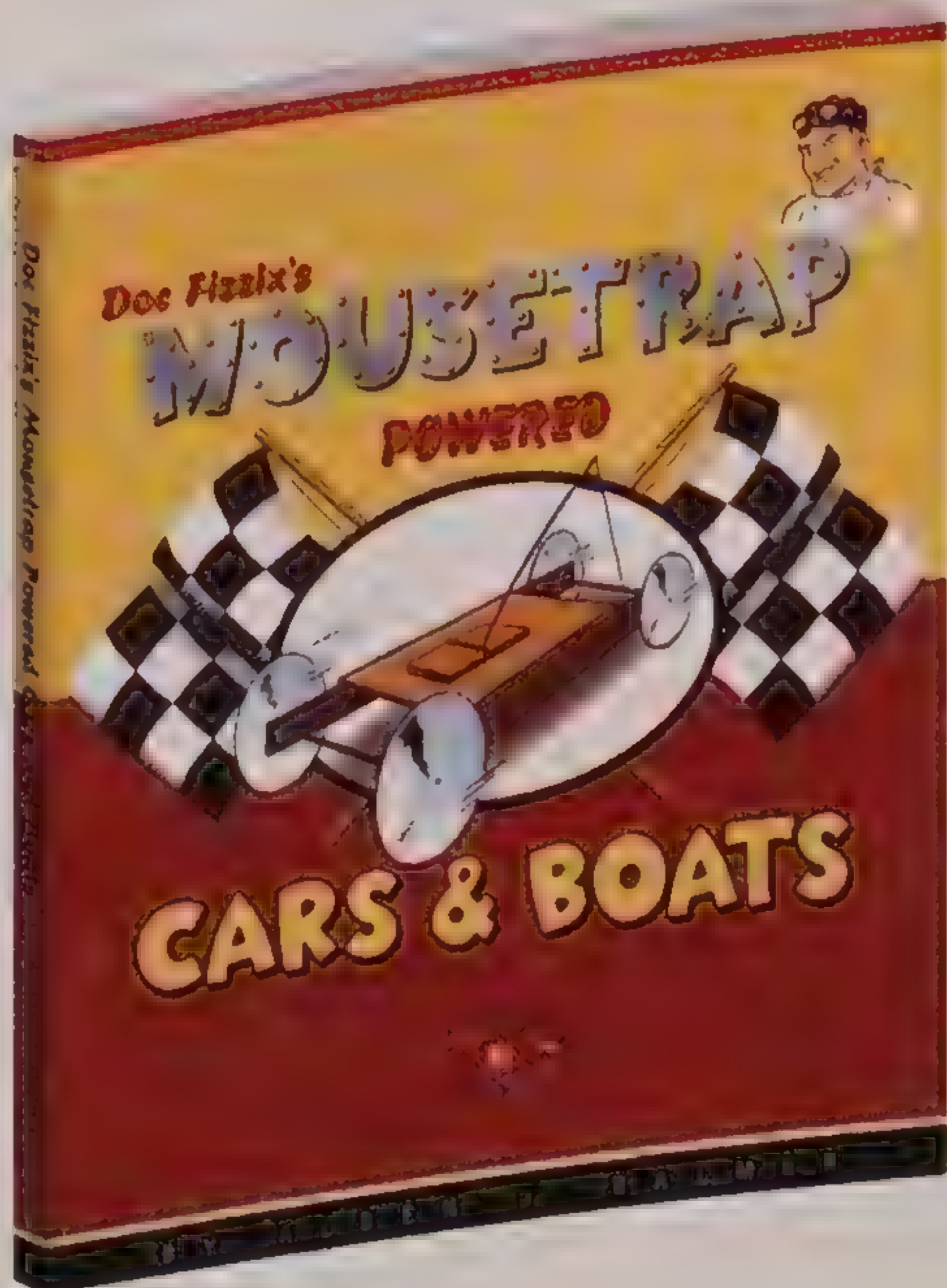
Z725384—\$275

DOC FIZZIX'S MOUSETRAP POWERED CARS & BOATS

Generously illustrated and fun to read, *Doc Fizzix's Mousetrap Powered Cars & Boats* examines in-depth the physics of mousetrap vehicle construction. It takes students through each variable that must be considered during construction – making lightweight frames, reducing friction, making wheels, building for speed, and building for distance. Packed with excellent construction tips and written in simple, easy-to-understand terms, this lighthearted book will give your students the information they need to build winning mousetrap vehicles. **Note:** This book replaces both the student's and teacher's editions of the popular *Mouse Trap Cars: The Secrets to Success*. The author has combined both volumes into one book and added even more information. For ages 10+. Paperback, 149 pages.

Level: Middle School-High School

Z758261—\$9.95



PITSCO CD WHEEL INSERTS

For the do-it-yourselfer, a set of four injection-molded wheel inserts that convert CDs and DVDs into nonwobbling wheels for your mousetrap vehicle. Includes bushings, string anchor, and screws.

Z724642—\$2.95

10 or more pkgs—\$2.65 each pkg

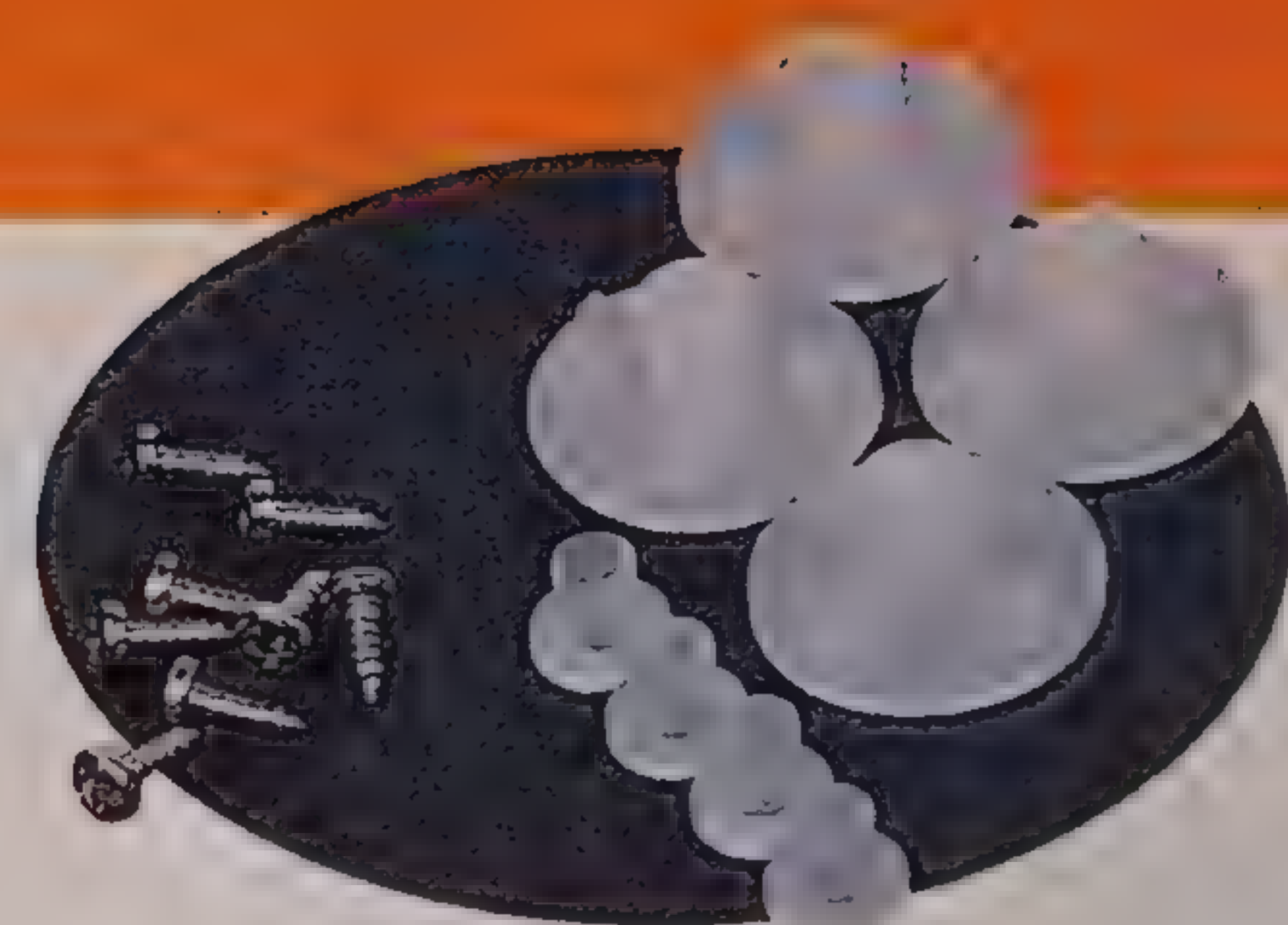
100 or more pkgs—\$2.50 each pkg

CD WHEELS

Use these normal-size CDs for wheels on your MTV. Axle and inserts not included.

Z755036 CD Wheels (pkg of 10)—\$4.95

10 or more pkgs—\$4.45 each pkg



BASIC MOUSETRAP VEHICLE KIT

More than a kit, this is a complete start-to-finish design activity for an individual student! The student will follow the design process and see direct applications of science and technology as he or she designs and builds a mousetrap-powered vehicle and competes with classmates to design the fastest car or the car that goes the farthest. Each kit includes balsa wood, four CDs (for wheels), CD spacers, thrust washers, brass tubing, string, and building instructions.

Level: Middle School-High School

Z757033—\$15.95

MOUSETRAP CAR PACKS

Save with these complete packs that contain enough materials to build 10 or 30 mousetrap vehicles. Each pack includes one copy of the basic building instructions and a copy of the helpful handbook, *Doc Fizzix's Mousetrap Powered Cars & Boats*.

Level: Middle School-High School

Z757034 Mini Pack (for 10 students)—\$99.95

Z757035 Class Pack (for 30 students)—\$299

MOUSETRAPS (VICTOR BRAND)

Use these traps for mousetrap-powered vehicles.

Z750168 (pkg of 10)—\$6.95

10 or more pkgs—\$6.30 each pkg



PITSCO BALLOON CAR EXPLORE-A-PAK **EXCLUSIVE**

Your students will feel inflated after they participate in this fun and challenging balloon car activity. Students build their own balloon-powered vehicles, ranging from the simple (card-stock templates are provided for the vehicle bodies) to the outrageous (students can dream up their own wild designs)!

If desired, the cars can be raced against one another in a classroom showdown. The *Balloon Car Explore-A-Pak* includes a teacher's guide, balloons, axles, wheels, templates, and other needed materials for 50 students.

Z990011—\$69

Z990052 Ford Template (pkg of 100)—\$38.50

Z990053 Chevy Template (pkg of 100)—\$38.50

Z990054 Dodge Template (pkg of 100)—\$38.50

Z990055 Tank Template (pkg of 100)—\$38.50



PITSCO ZOON AIR CAR PACK

There's no better way to introduce students to the concepts of force, motion, transfer of energy, and friction than with an inexpensive activity they can do themselves with few tools and relatively little time. The *Zoon Air Car* (ZAC for short) introduces students to the basics of car design and performance through the use of straws, paper clips, rubber bands, and parts from a die-cut sheet. The ZAC Pack contains detailed instructions and enough supplies to make 30 *Zoon Air Cars*.

When students have finished building, testing, and modifying their *Zoon Air Cars*, set up a competition to find out which cars are fastest and help students determine what makes one car better than the next.

Z724614—\$49

Z729640 Zoon Air Car Templates (pkg of 10)—\$12.95

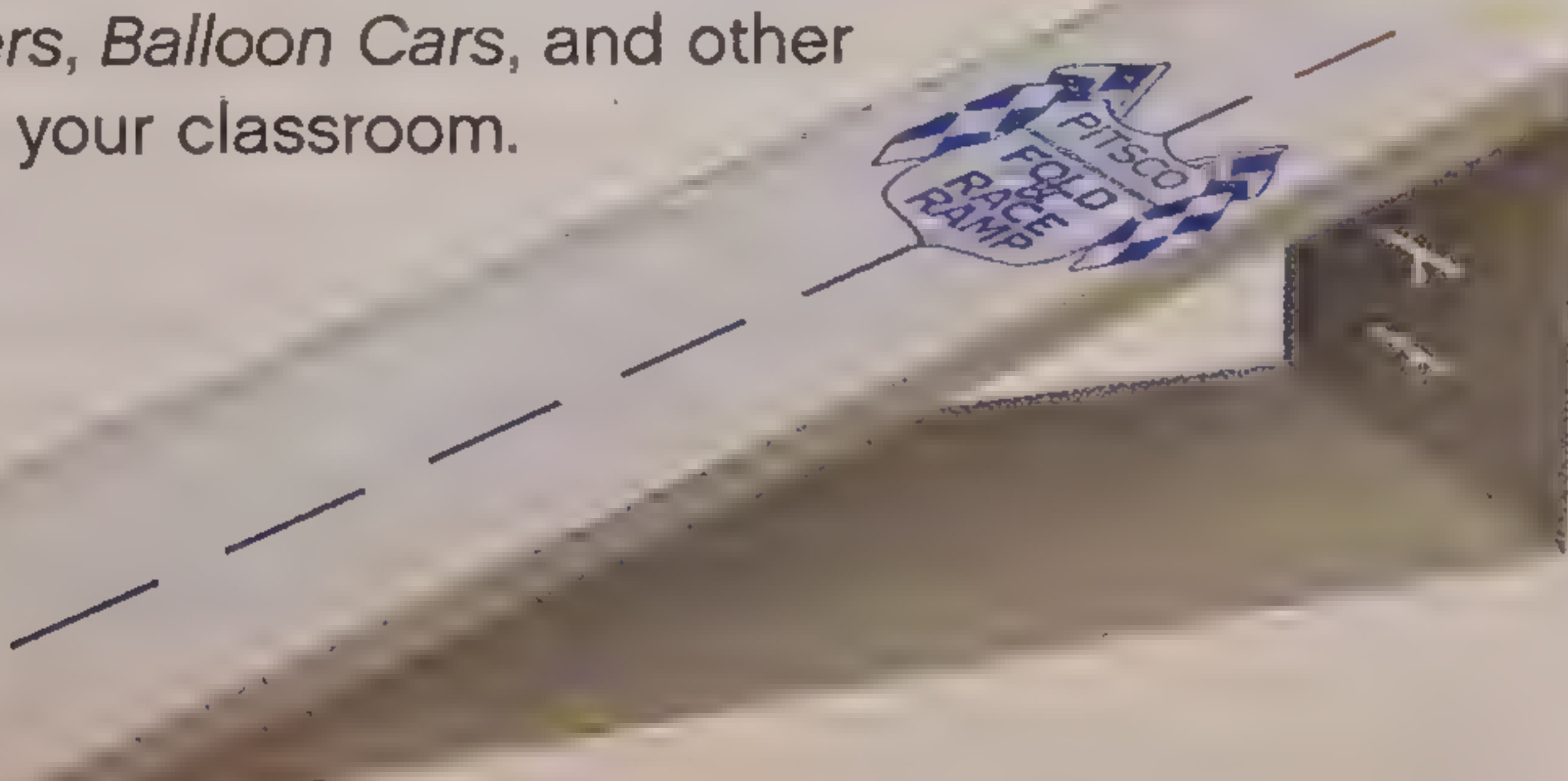
PITSCO FOLD & RACE RAMP

Fold it up and start racing within minutes!

The Pitsco *Fold & Race Ramp* is designed specifically for the elementary classroom needs. Economical, easy to store, and fun to use. Use the ramp to test and race *Fold-N-Roll Racers*, *Balloon Cars*, and other rolling models in your classroom.

Z990022—\$7.95

PITSCO
LEADERS IN EDUCATION



Wheels in the racer kit are different from those shown in photo.

PITSCO FOLD-N-ROLL RACER KIT

A collection of cool and colorful hot rods that can be cut out and folded into three-dimensional vehicles! Sixteen sweet street machines are printed in color on the card-stock pages of the book. Enough wheels and axles are provided to make all 16 models into rolling vehicles. A great elementary transportation activity!

Z754546—\$29.95

DOWEL

Z733476 (3 mm x 18") (pkg of 10)—\$7.75

FOLD-N-ROLL VEHICLES

GETTING STARTED

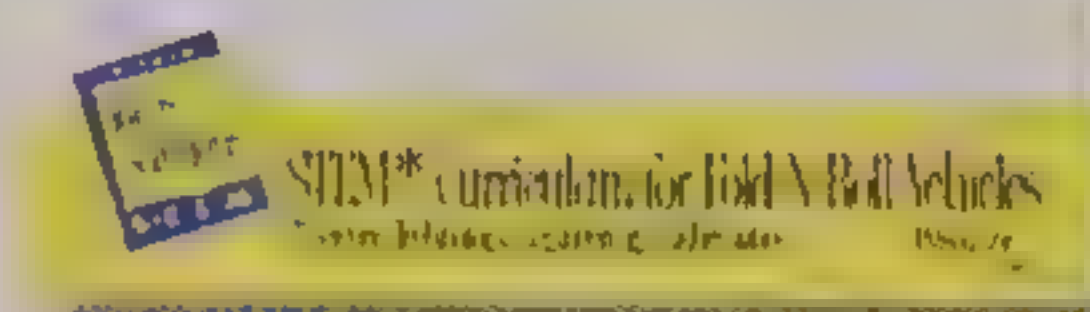
TEACHER'S GUIDE

Paper cars might seem elementary, but by designing, building, and experimenting with fold-and-roll vehicles, students discover keys to momentum, velocity, design, potential energy, material costs, and more.

The *Fold-N-Roll Vehicles GS Teacher's Guide* contains NSTA, NCTM, NSTA, and NCTE standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 97 pages.

Level: Middle School-High School

Z732941—\$24.95



eLAB Renewable Energy



EXCLUSIVE

ELAB RENEWABLE ENERGY SET

The eLAB *Renewable Energy Set* helps students achieve an understanding of how energy is developed from the Sun, wind, and water. Solar energy can be captured by the LEGO® Solar Cell and used to power a model Ferris wheel, solar car, or test car. Or, your students can watch wind or water energy in action by creating a windmill or water mill.

There are 724 elements, including a gear motor, gear block, capacitor, and long and short leads. Includes three different building instructions for each source of energy.

Z979684—\$174.95



Save \$92

GS
GETTING STARTED

RENEWABLE ENERGY - GETTING STARTED PACKAGE

Teaching renewable energy concepts to an entire classroom has never been easier!

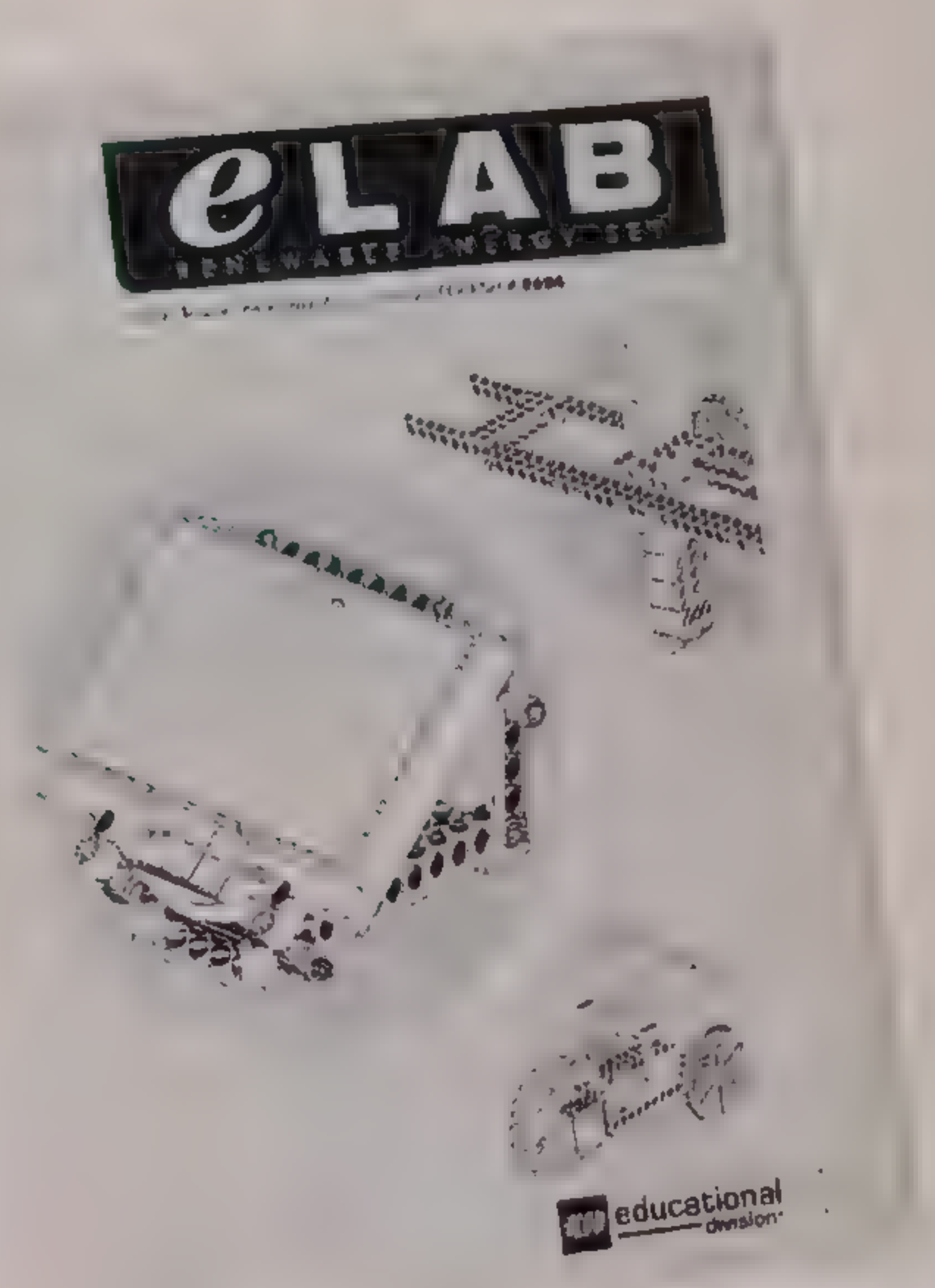
With the *Renewable Energy Set* and accompanying materials in this package, students learn to investigate ideas, predict results, consider factors that influence results, obtain and record data, analyze results, evaluate strengths and weaknesses of data, draw conclusions, and communicate with other students in teams.

This package includes everything you need to conduct eLAB activities with 24 students.

- Z979684 Renewable Energy Sets (12 sets included in GS package) each set \$174.95
- Z909684 Renewable Energy Activity Pack \$28

Z991152 Renewable Energy - GS Package—\$2,035

A \$2,127.40 value!



EXCLUSIVE

ELAB RENEWABLE ENERGY ACTIVITY PACK

This black-and-white activity pack for the eLAB *Renewable Energy Set* includes worksheets supporting experiments and project work with all three renewable energy sources, as well as the teacher notes from the eLAB *Renewable Energy Set*.

Z909684—\$28

eLAB

LEGO® SETS FOR SCHOOLS

ELAB IN THE CURRICULUM

Covering basic topics in physical science, as well as being relevant to the general science classroom, eLAB will fit easily into your curriculum. Designed to help students grasp the abstract and sometimes difficult concept of energy through captivating and hands-on activities, eLAB introduces students to real-life mechanisms such as capacitors, windmills, and solar cells. Basic topics include:

- What is energy?
- Potential energy
- Movement or kinetic energy
- Converting potential energy into kinetic energy
- Storing energy in an elastic band
- Storing electrical energy
- Energy efficiency
- Distributing energy
- Renewable energy from sunlight, wind, and water

STRUCTURED TEACHING

Teachers can quickly get a whole class working with eLAB. Cost efficient and easy to implement, eLAB provides teachers with a structured teaching plan for guiding students step-by-step through the fundamental principles of energy. A minimum of preparation is sufficient for teachers to devote maximum classroom time to experimenting, measuring, and learning.

RENEWABLE ENERGY ACTIVITY PACK

The *Renewable Energy Activity Pack* provides a logical, step-by-step guide to energy projects and activities.

The pack is divided into units that establish learning objectives, suggest topics for discussion, and supply a useful framework for individual lessons, thus reducing preparation time to a minimum.

A reproducible series of worksheets is included. The motivating assignments encourage students to conduct experiments and increase their knowledge and skills at their own pace. At the end of each worksheet, students are asked to summarize what they have learned, providing the teacher a simple means of monitoring their progress.

POWER WITH NATURE

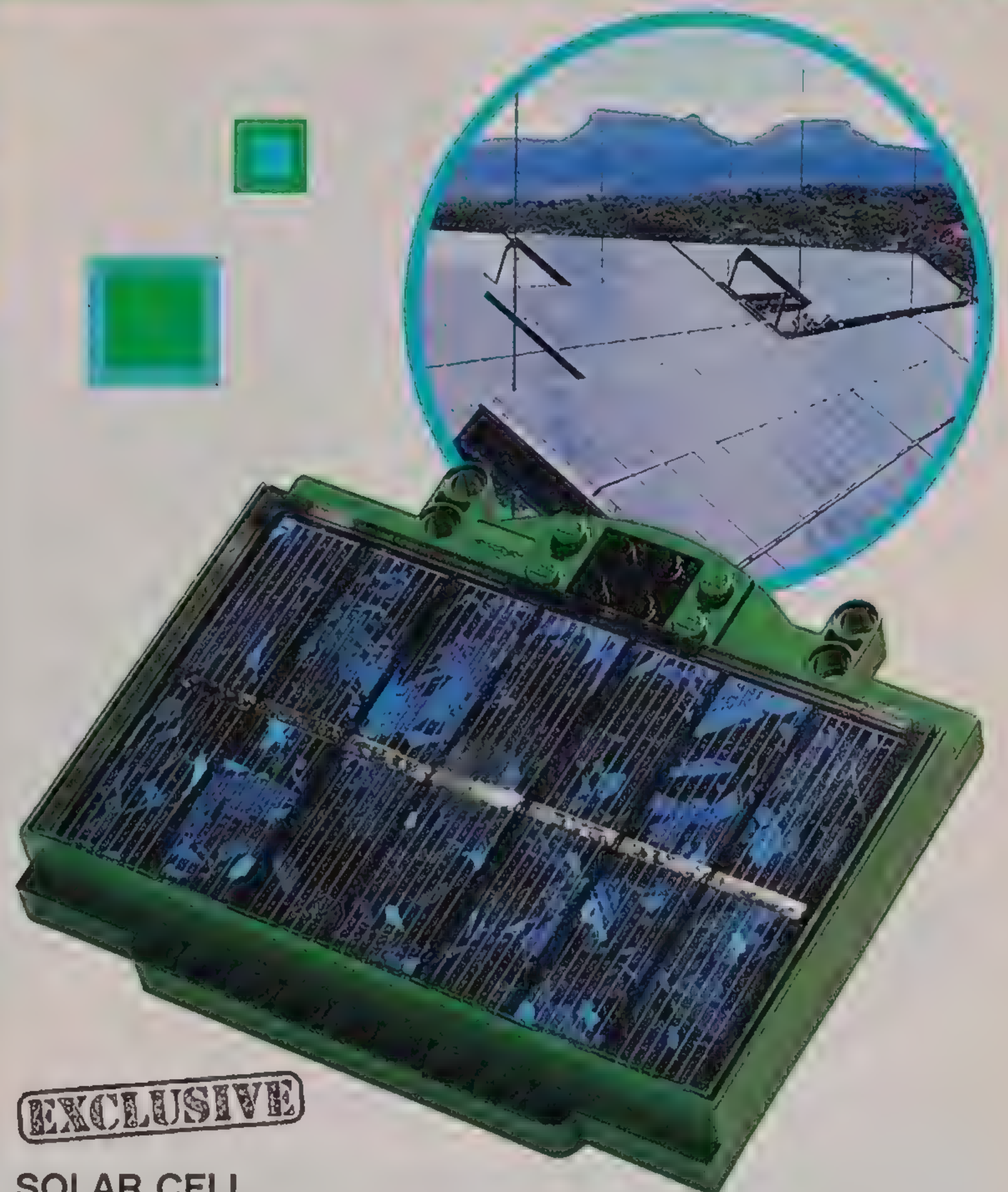
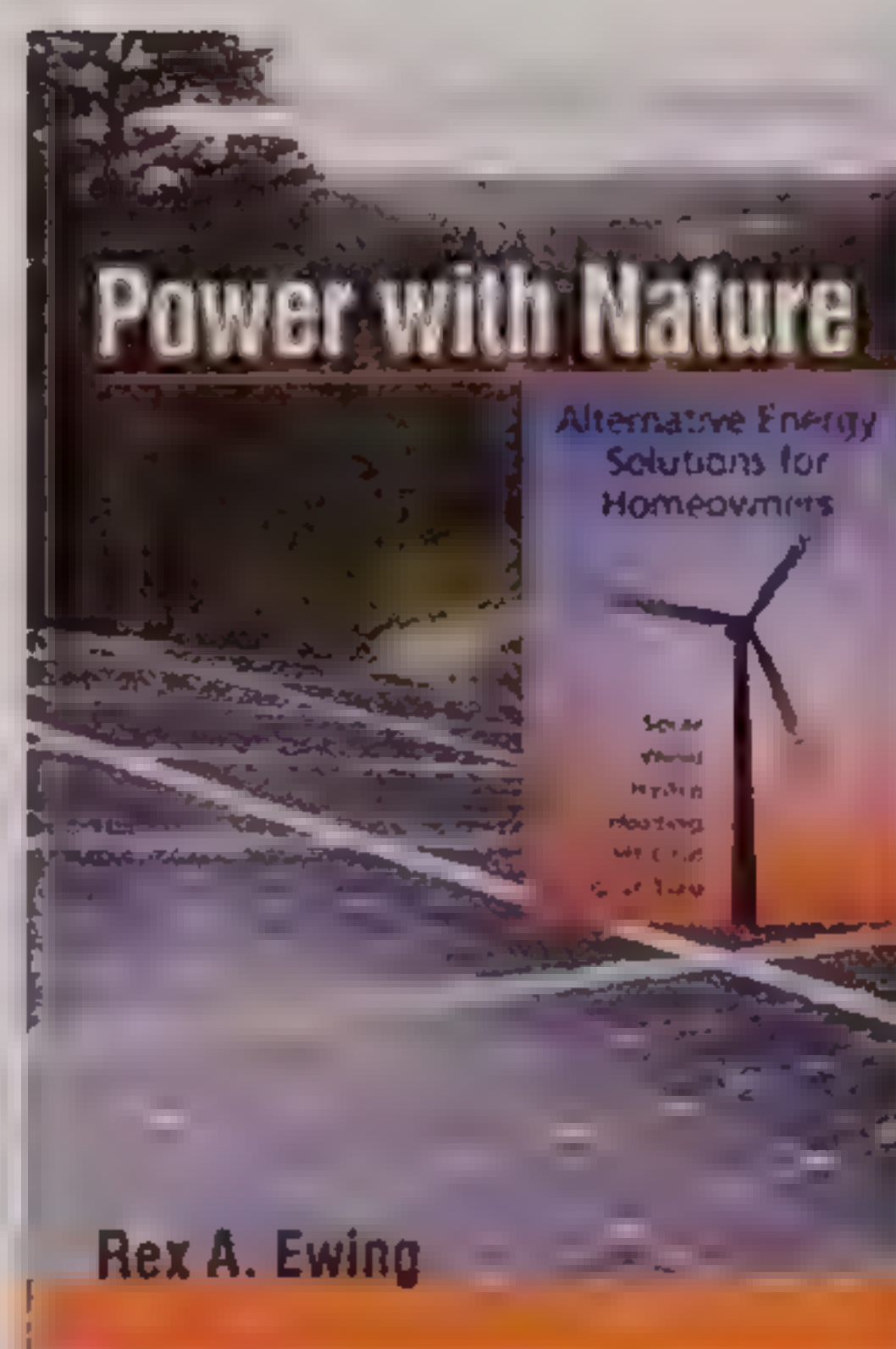
Written in a folksy, informal manner by someone who lives off the grid and loves it, *Power With Nature* demystifies renewable energy and explains it in plain English. You'll be entertained and enlightened by page after page filled with practical, hands-on information including:

- Grid-intertie and off-grid systems
- Solar photovoltaic modules
- Wind turbines
- Micro-hydro power
- Charge controllers, inverters, batteries, and other components
- Sizing your system
- Solar hot water
- Home heating systems
- Options for pumping water

Includes a comprehensive appendix with system-sizing worksheets, wire size/line loss tables, solar radiation maps, and a detailed resource section. Paperback, 249 pages.

Level: High School-Adult

Z759534—\$24.95



EXCLUSIVE

SOLAR CELL

This solar cell is built tough to withstand student use. The LEGO® Solar Cell provides sufficient power to operate LEGO models. Easy to connect.

Z979912—\$38.95



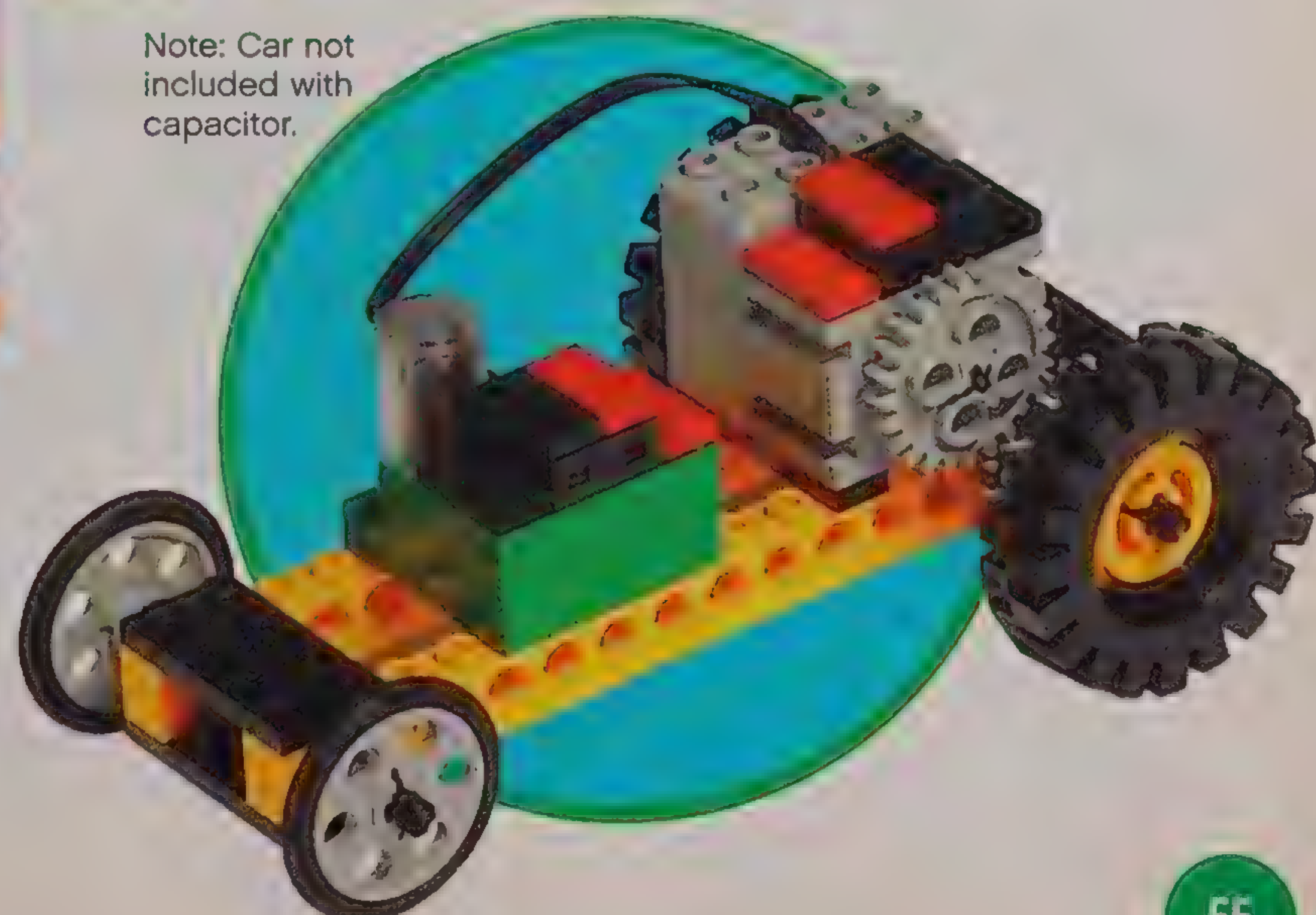
EXCLUSIVE

CAPACITOR

An innovative LEGO® device for efficient energy storage, the LEGO Capacitor is easy to connect and makes the principles of storing and transferring energy easy to understand.

Z979916—\$19.95

Note: Car not included with capacitor.



Ray Catcher



Save \$28

GS
GETTING STARTED

EXCLUSIVE

PITSCO
LEADERS IN EDUCATION

PITSCO SOLAR VEHICLES – GETTING STARTED PACKAGE

Saving energy in transportation is on the top of the list for everyone these days. This Getting Started package provides materials for 25 students to design, build, and test their own solar vehicle designs.

The *Solar Vehicles – GS Package* includes the following products that can also be ordered individually:

- Z721533 Ray Catcher Sprint Deluxe Power Pack.....\$445
- Z732445 Ray Catcher Vehicle Video.....\$24.95
- Z757856 Solar Vehicles Book.....\$4.95
- Z758606 Dry Powder Graphite (2 tubes included in the GS package) each.....\$1.50

Z723615 Solar Vehicles – GS Package—\$449

A \$477.90 value!

Note: Five Ray Catcher Panels are included in the Deluxe Power Pack®.

SOLAR VEHICLES GETTING STARTED TEACHER'S GUIDE

Use the Sun to power cars and your students' minds! With this guide, you can cruise through activities delving into photovoltaics, energy and power, ratios, data graphing, and much more – you'll really soak up the Sun!

The *Solar Vehicles GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 93 pages.

Level: Middle School-High School
Z759464—\$24.95

PITSCO RAY CATCHER VEHICLE VIDEO

Catch some rays – no sunscreen required!

The *Ray Catcher Vehicle Video* steps your students through the building of this super-fast solar car, which is designed for the Junior Solar Sprint contest.

Along the way, students will learn applicable science concepts such as photovoltaics, gears, friction, and more. Closed-captioned. Time: 24 minutes.

Level: Middle School-High School

Z732445 VHS—\$24.95

Z732914 DVD—\$24.95

The
PitSCO Ray Catcher



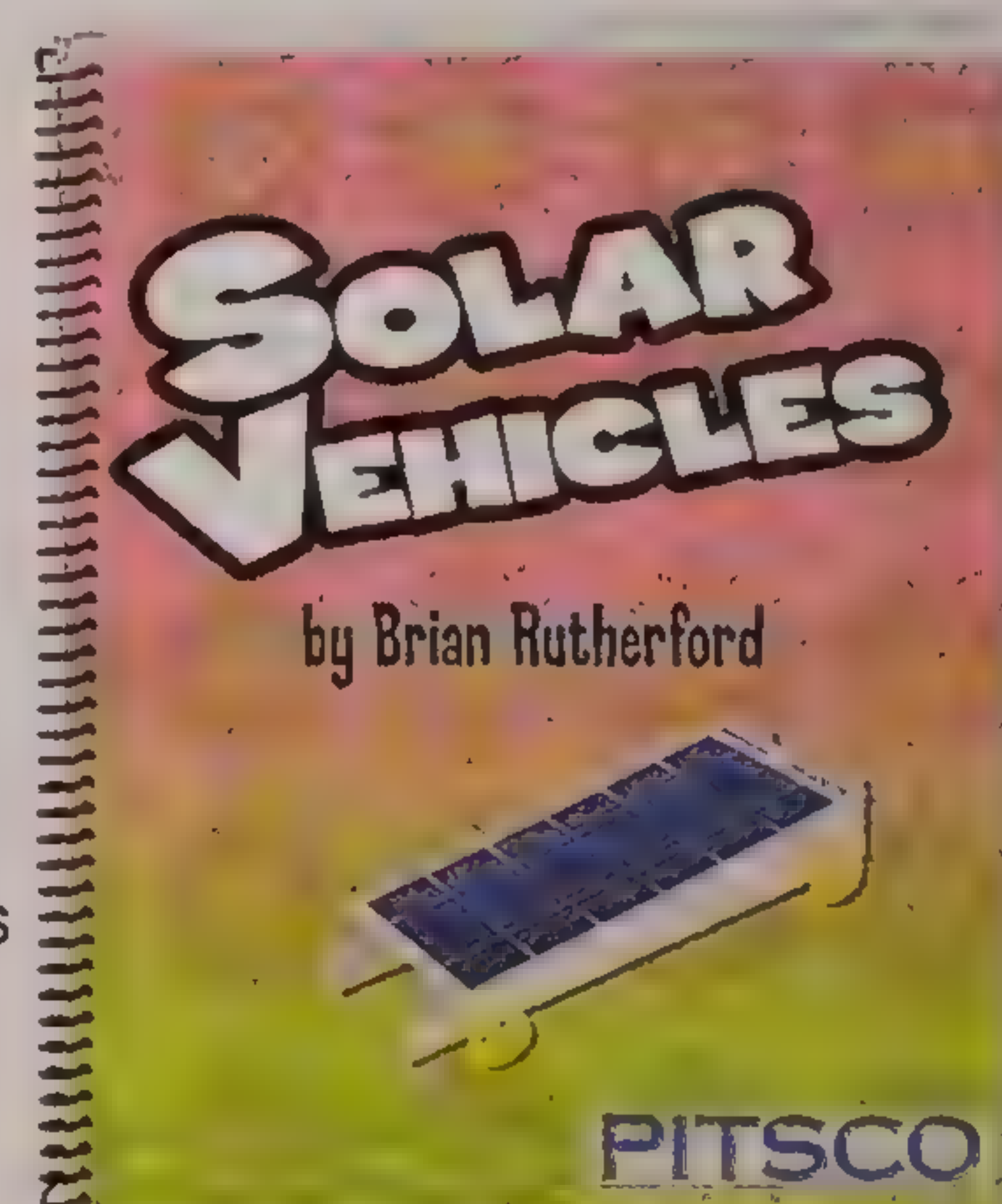
PITSCO SOLAR VEHICLES

As electricity rates soar and gasoline prices fluctuate wildly, many believe it's time to take a more serious look at solar power. Brian Rutherford's thorough but readable account of this clean, abundant energy source – its applications, engineering challenges, and mechanical devices – provides students with a basic understanding of how photovoltaic systems work.

Students learn the pros and cons of solar energy, the methods of generating and storing solar power, and the mechanisms that power real-life solar vehicles – from pulleys and gears to batteries and sensing devices. Finally, students apply their knowledge to their own engineering challenge – design, build, and race a vehicle powered only by sunlight. Contains super tips on maximizing power, reducing friction, and evaluating the performance of the vehicle. Paperback, 31 pages.

Level: Middle School-High School

Z757856—\$4.95



PITSCO RAY CATCHER SPRINT KIT

This kit replaces our original *Sun Sprint Kit*! The new solar panel is slightly smaller (10.5" x 5.0" x 0.08"), less breakable, and has two mounting holes, enabling the student to attach it to the car body with screws. The kit still contains all the official parts and meets the minimum specifications required by the Junior Solar Sprint competition. It includes the solar panel, the official electric motor, and a pair of small alligator clips for easy hookup. Chassis, wheels, and transmission are not included in this kit.

Z721210—\$49.95

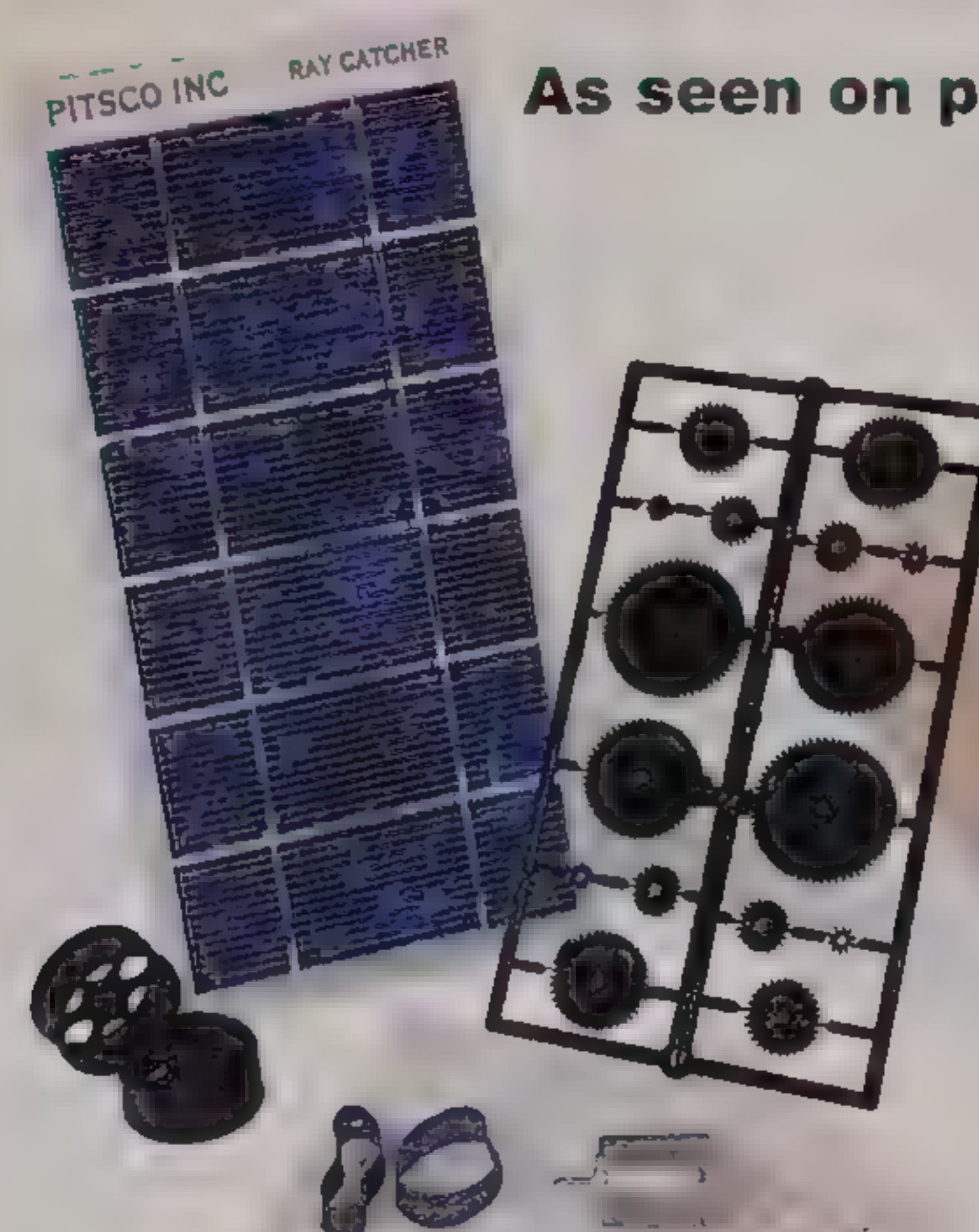
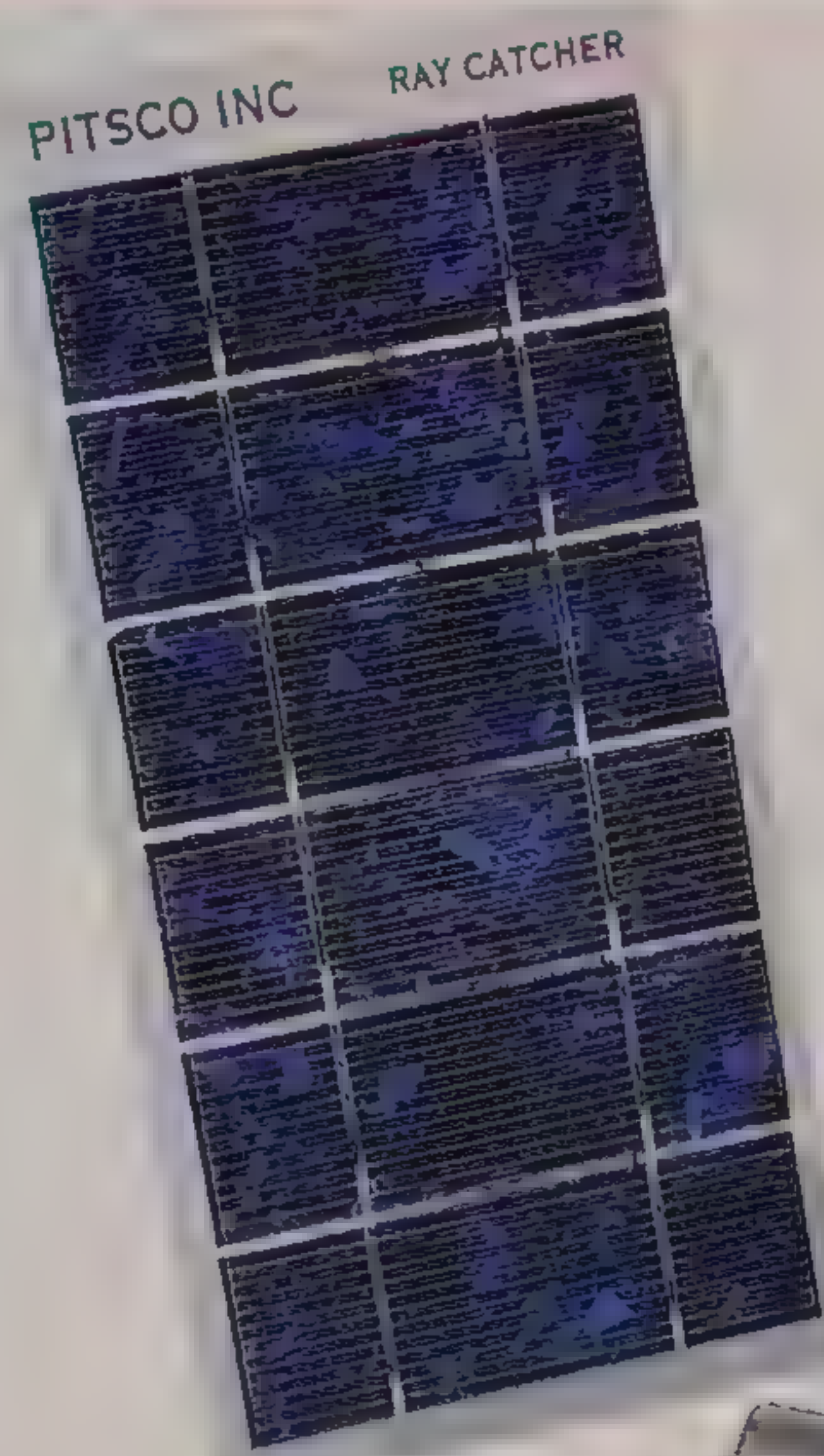
Z721112 Solar Panel Only—\$44.95

10 or more—\$40.45 each

100 or more—\$38.20 each

Z754665 Alligator Clips (pkg of 10)—\$7.50

Z751046 AA Batteries (pkg of 2)—\$1.95



As seen on public television's
dragonflytv
www.dragonflytv.org

PITSCO RAY CATCHER SPRINT DELUXE KIT

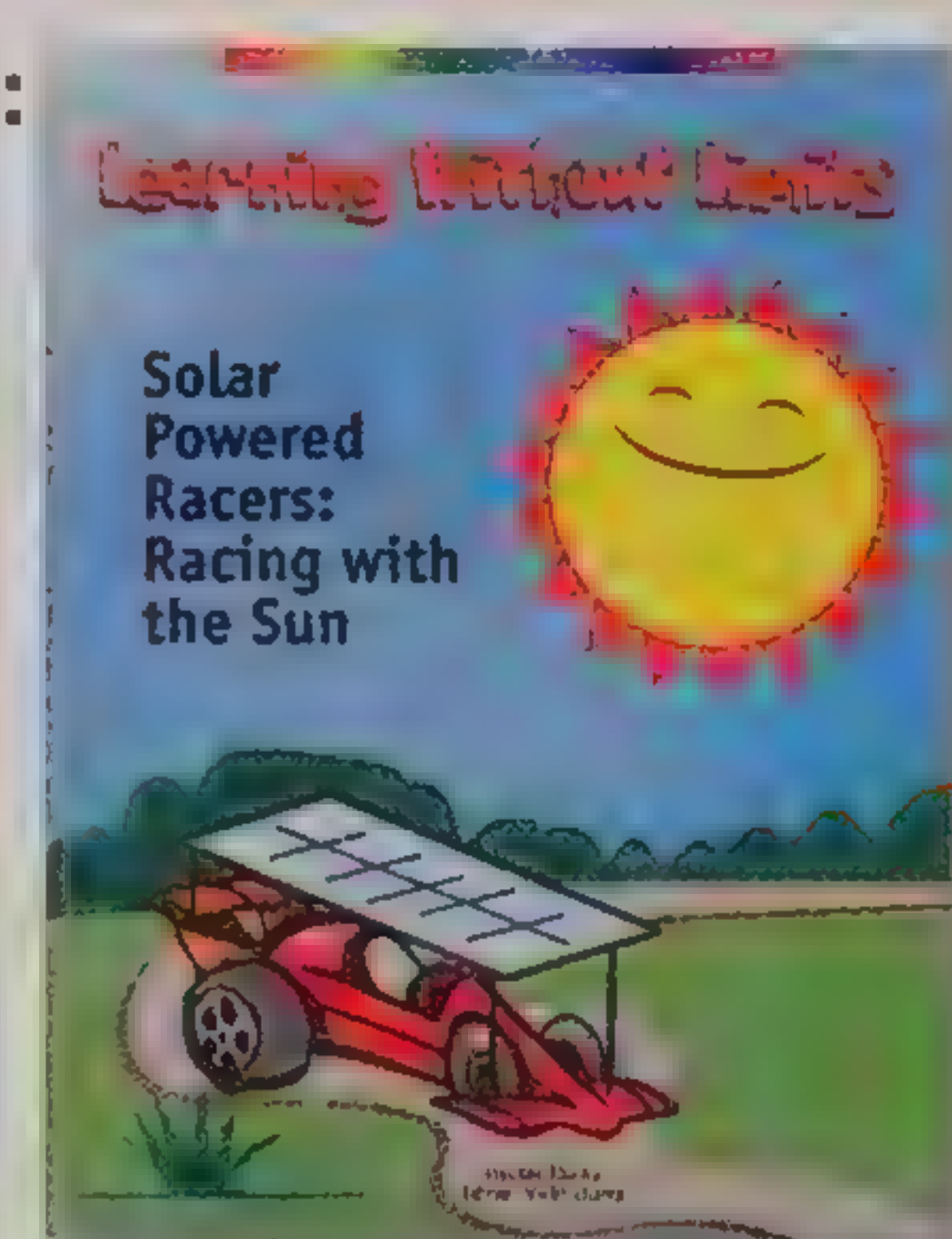
Everything you need to build a complete vehicle for the Junior Solar Sprint competition! This kit contains the required solar panel and electric motor plus two 10-1/2" x 4" balsa wood sheets, four nylon spacers, two alligator clips, two 5-1/2" axles, four wheels, four rubber bands, one plastic gear font, two screw eyes, and instructions.

Z721211—\$59.95

SOLAR POWERED RACERS: RACING WITH THE SUN

For students to truly understand how solar-powered cars operate and to build their own successfully, they need the information provided in *Solar Powered Racers: Racing with the Sun*. This workbook includes information on gear ratios, aerodynamics, wheel alignment, friction, and a lot more! The book features photos and cartoon illustrations that show procedures and instructions detailed in the text. Paperback, 50 pages.
Level: Intermediate-Middle School

Z758647—\$18.95



PITSCO RAY CATCHER SPRINT DELUXE POWER PACK

Includes *Power Pack* basics for 25 students (or 50 students working in teams of two) and everything else needed for that special solar car! Includes: five *Ray Catcher* solar panels, 25 *Motors 280*, 25 solar panel blanks, 50 balsa wood sheets, 60 alligator clips, 100 wheels, 100 rubber bands, 25 neon blue straws, 100 nylon spacers, 50 plastic Delrin axles, 25 plastic gear fonts, 25 two-cell AA battery holders, and assembly and competition instructions.

Z721533—\$445

Z751046 AA Batteries (pkg of 2)—\$1.95

FUEL CELL CAR AND EXPERIMENT KIT

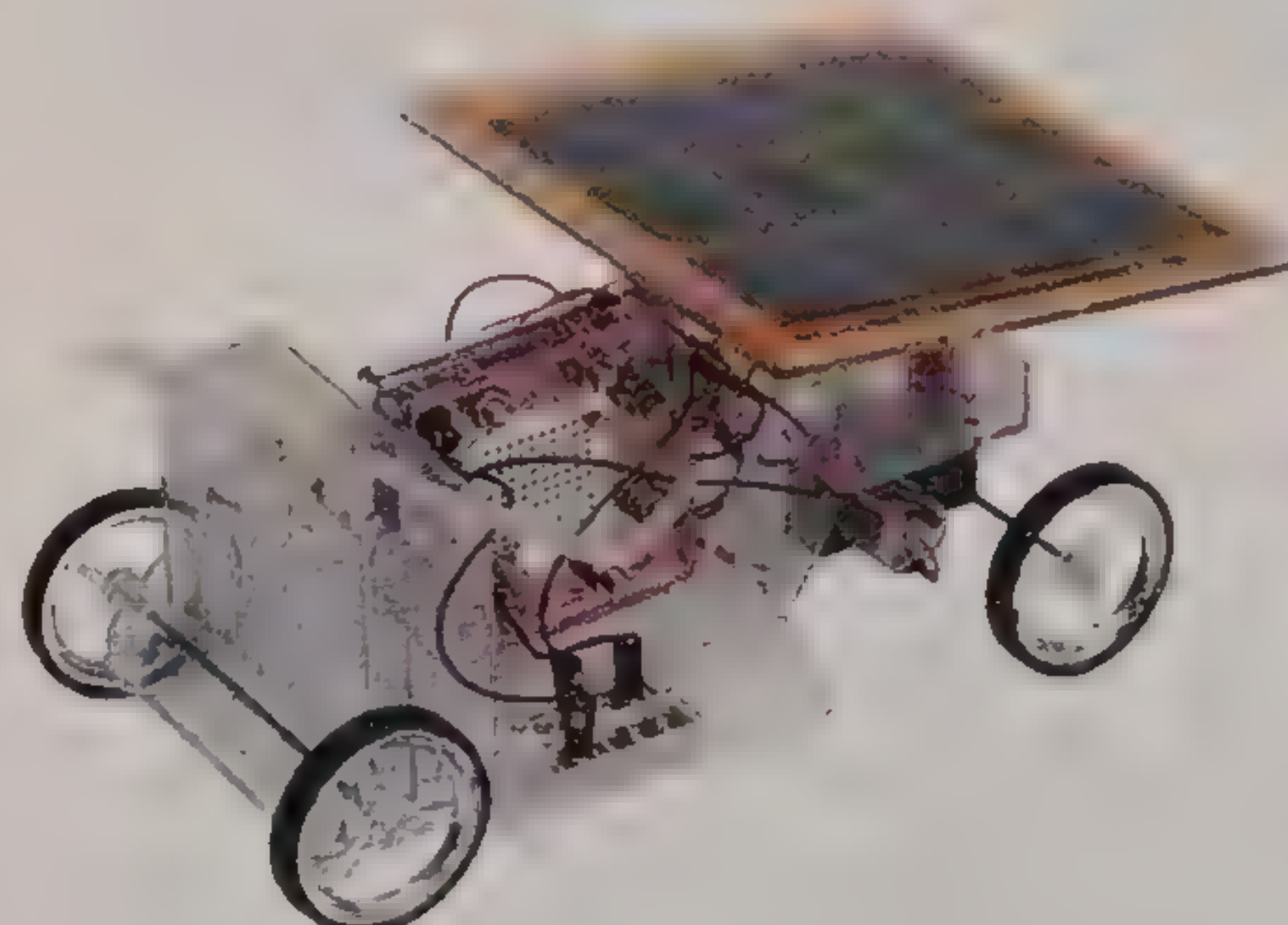
No batteries are needed when you build a model car that runs on water! The *Fuel Cell Car* provides a playful introduction to one of the most significant technologies of the twenty-first century.

After building the model, pour in one quart of distilled water and watch it separate into hydrogen and oxygen, forming a gas that powers the vehicle across the floor. With the more than 30 experiments and demonstrations included in the 96-page lab manual, students learn how a reversible fuel cell works and how it creates energy. They also understand the physics upon which this future technology is based.

The kit includes a digital *MultiMate* that measures currents and voltage and all materials needed to construct the model. Distilled water not included.

Level: Intermediate-High School

Z758309—\$150



POWER HOUSE

Teach your students about natural energy from the sunlight and wind by showing them a demonstration of an energy-efficient home. This kit is a great classroom investment.

With this *Power House* kit, students learn about all sorts of energy techniques. Through a complete set of necessary supplies, including a windmill, solar panels, and a thermometer, students are able to construct their own model home and gather natural energy themselves. With more than 70 possible experiments, 20 models, and a user's guide full of energy information, this kit is the perfect addition to any science or technology class.

Z758656—\$169



PITSCO
LEADERS IN EDUCATION



Save \$32

GS
GETTING STARTED

PITSCO SUNEZOOM – GETTING STARTED PACKAGE

Now it's easy to give an entire classroom a hands-on experience with solar energy. This Getting Started package – featuring the easy-to-assemble *SunEzoon Car* – has two videos to guide and inspire students and enough materials for students to build 25 solar cars.

The *SunEzoon Car – GS Package* includes the following products that can also be ordered individually:

- Z759039 Dr. Zoon SunEzoon Video\$24.95
- Z728575 SunEzoon Class Pack.....\$275
- Z758757 Driven by the Sun Video.....\$32

Z759471 SunEzoon – GS Package—\$299

A \$331.95 value!

PITSCO DR. ZOON SUNEZOOM VIDEO

Rain, rain, go away, Dr. Zoon wants to go out and play – with his newest solar car, the *SunEzoon*!

Work along with Dr. Zoon as he builds the *SunEzoon Car*. While demonstrating the step-by-step building instructions, he illuminates the scientific principles involved: photovoltaics, gears, energy, and alternative energy.

The *SunEzoon Car Kit* and the *Dr. Zoon SunEzoon Video* are the perfect combination for introducing students to the world of solar power. Closed-captioned. Time: 14 minutes.

Level: Intermediate-Middle School

Z759039 VHS—\$24.95

Z759751 DVD—\$24.95



PITSCO SUNEZOOM CAR KIT

Looking for a solar car that's a piece of cake to assemble? Want to interest students in using solar energy without grabbing glue guns or soldering irons? Then, the *SunEzoon Car Kit* is the kit for you.

Easier to assemble than the *SunZoon Car*, *SunEzoon* will work outdoors in full sun or indoors under a bright incandescent light. Each kit contains instructions, solar panel with alligator clamps, motor, wheels, steel axles, gear font, chassis parts (colors may vary), and a cut-and-fold cover. For visual instructions and science applications, the *Dr. Zoon SunEzoon Video* is a great resource.

Z728574—\$12.95

PITSCO SUNEZOOM CAR CLASS PACK

The class pack includes enough materials to build 25 *SunEzoon Cars*.

Z728575—\$275



SUNEZOOM CAR GETTING STARTED TEACHER'S GUIDE

Pitsco's *SunEzoon Car* may be easy to build, but this guide exposes it as the perfect tool for learning various math, science, and engineering subjects. This comprehensive guide sheds light on drive and pinion gears, slope, coordinate graphing, speed, velocity, acceleration, and more.

The *SunEzoon Car GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 121 pages.

Level: Middle School-High School

Z759465—\$24.95



PITSCO SUNZOOM LITE KIT

Bigger isn't always better – give this little solar car a bright, sunny day and it can really move! The *SunZoon Lite* requires minimal soldering, making it a perfect kit for solar car beginners.

Use the basswood chassis as is or cut it in a desired shape (the chassis can be painted any color desired). Includes the chassis, solar panel, *Motor 280*, gear font, front and back wheels, spacer material, adhesive tabs, and a template.

Z728576—\$8.95

PITSCO SUNZOOM LITE CLASS PACK

Everything needed to build 25 *SunZoon Lite* solar cars. Just add students!

Z731727—\$202



PITSCO
LEADERS IN EDUCATION.

EXCLUSIVE

Save \$24

GS
GETTING STARTED

PITSCO SUNZOOM LITE – GETTING STARTED PACKAGE

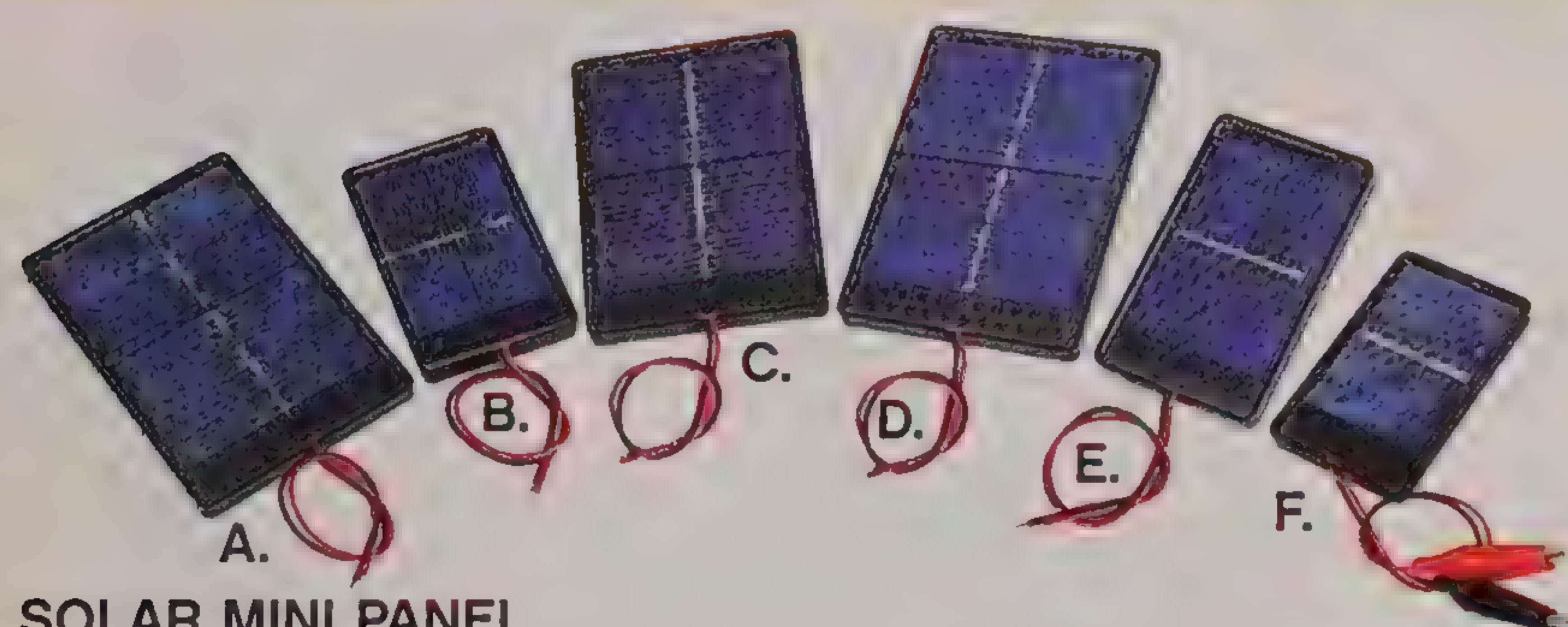
Try this low-calorie approach to solar energy! This package has enough materials for 25 students to build a *SunZoon Lite* car, plus the *SunZoon Lite Video* and a popular Janice VanCleave energy book.

The *SunZoon Lite – GS Package* includes the following products that can also be ordered individually:

- Z731727 SunZoon Lite Class Pack.....\$202
- Z733086 SunZoon Lite Video.....\$24.95
- Z731572 Energy for Every Kid Book.....\$12.95

Z733442 SunZoon Lite – GS Package—\$215

A \$239.90 value!



SOLAR MINI PANEL

Connect these solar panels to motors to make solar-powered vehicles and other projects. These solar cells are enclosed in plastic cases, so they are durable in your classroom. Panels A, C, and D are 2-5/8" x 3-3/4". Panels B, E, and F are 1-3/4" x 3".

A. Z756871 (0.5V, 800 mA)—\$4.95

10 or more—\$4.45 each

B. Z756870 (1.0V, 200 mA)—\$2.95

10 or more—\$2.65 each

C. Z756851 (1.0V, 400 mA)—\$4.95

10 or more—\$4.45 each

D. Z756852 (2.0V, 200 mA)—\$4.95

10 or more—\$4.45 each

E. Z750074 (.45V, 400 mA)—\$2.20

10 or more—\$2 each

Limited Quantity on 750074

F. Z759043 (.45V, 400 mA)

with alligator clips—\$3.20

PITSCO GEAR FONT

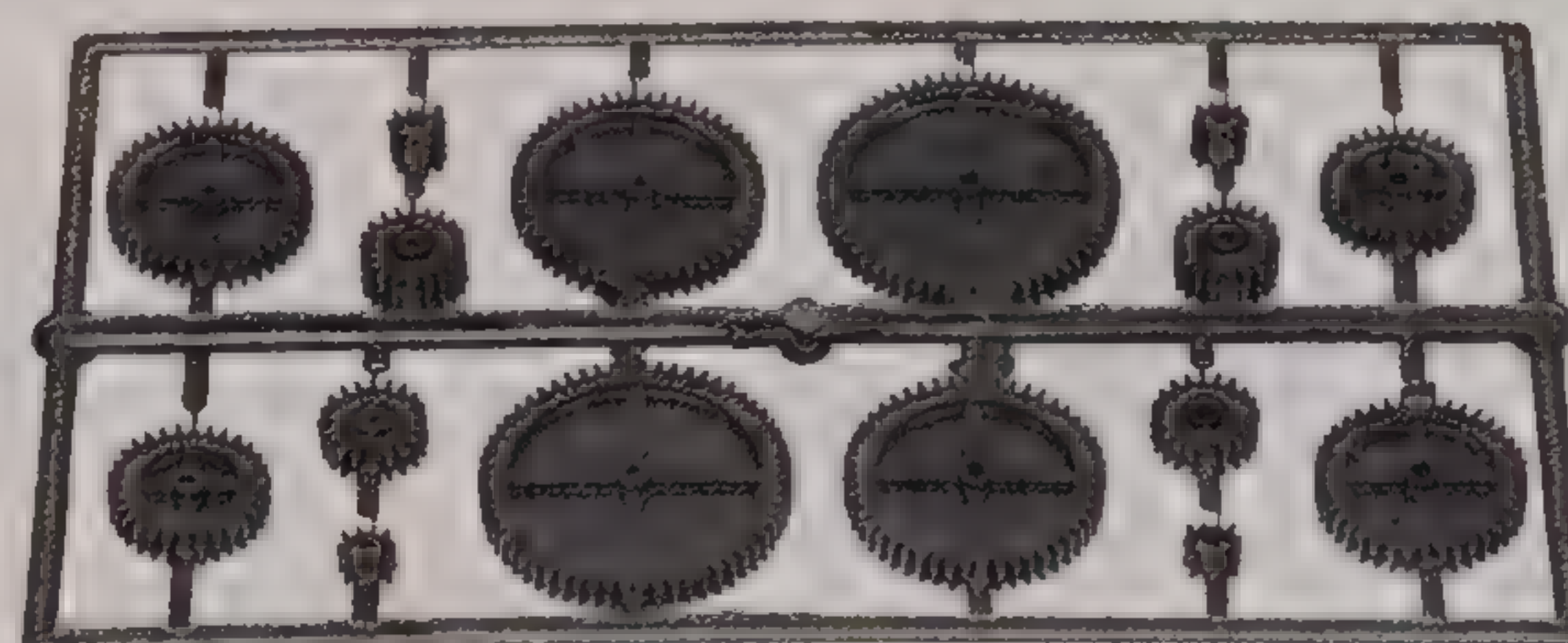
Get your motor running! All we need are three words to describe our newest gear font: better than ever.

These 16 plastic gears come in an easy punch-out frame and range in size from 1/2" to 2". Redesigned with accurate gear tooth geometry for a smoother, more fluid fit, these gears can be used on any Pitsco product requiring a gear to turn a servo, wheel, or motor.

Z725300—\$5

10 or more—\$4.50 each

100 or more—\$4.25 each



MOTOR 385

A heavy-duty motor with carbon brushes. It is an excellent choice for robotics design, model racing cars, R/C vehicles, or any other high-torque, low-power consumption applications. 6-24VDC, 1,300 mA. No-load speed 14,300 rpm, stall torque 7.71 oz/in.

Z750076—\$4.50 each

10 or more—\$4.05 each

MOTOR 500

Use this motor with our Pitsco Gear Font. Smooth running motor with very low starting friction. Operating range: 1.5-4VDC, 150 mA.

Z750075—\$3.50 each

10 or more—\$3.15 each

MOTOR 280

A great little motor for small electric vehicles or solar racers. This is the motor specified by the Junior Solar Sprint competition! Operating voltage: 1.5-3VDC at 330 mA.

Z754428—\$1.75 each

10 or more—\$1.60 each

PITSCO SOLAR WHEELS

Smooth wheels with very low rolling resistance. 1-1/8" diameter with O-ring "tire."

Z713340 (pkg of 100)—\$25

10 or more pkgs—\$22.50 each pkg

WIDE RUBBER BANDS

Approximately .5" width x 2" length.

Z756136 (pkg of 50)—\$1.95



PITSCO SOLAR DESIGNER'S KIT

With this kit a team of two students makes a solar-powered car by using the supplied parts and instructions. The team may modify the car to include new ideas. Other project ideas are suggested. Kit contains the following: solar panel (.45V, 400 mA) 1-3/4" x 2-15/16", DC motor, plastic car body, Pitsco Gear Font, two axles, four Pitsco wheels, four 1/8" brass washers, propeller, and instruction guide. Car will travel under bright sunlight.

Z750073—\$11.50

10 or more—\$10.35 each

SOLARPAK

Z751417 (for 25 students)—\$249

Wind Energy

PITSCO
LEADERS IN EDUCATION

EXCLUSIVE

Save \$58



PITSCO WIND ENERGY – GETTING STARTED PACKAGE

The need for alternative energies has never been more apparent than right now! Get students thinking about energy concepts through this hands-on activity. The Getting Started package has enough materials for 25 student wind generators and has a *WinDynamo II* for teacher demonstrations or advanced student explorations.

The *Wind Energy – GS package* includes the following products that can also be ordered individually:

- Z732470 Wind Generator Class Pack.....\$290
- Z732255 Wind Gen Video.....\$24.95
- Z728400 WinDynamo II\$295
- Z723925 Eyewitness: Energy Book\$15.95

Z723616 Wind Energy – GS Package—\$567

A \$625.90 value!

PITSCO WINDYDYNAMO II

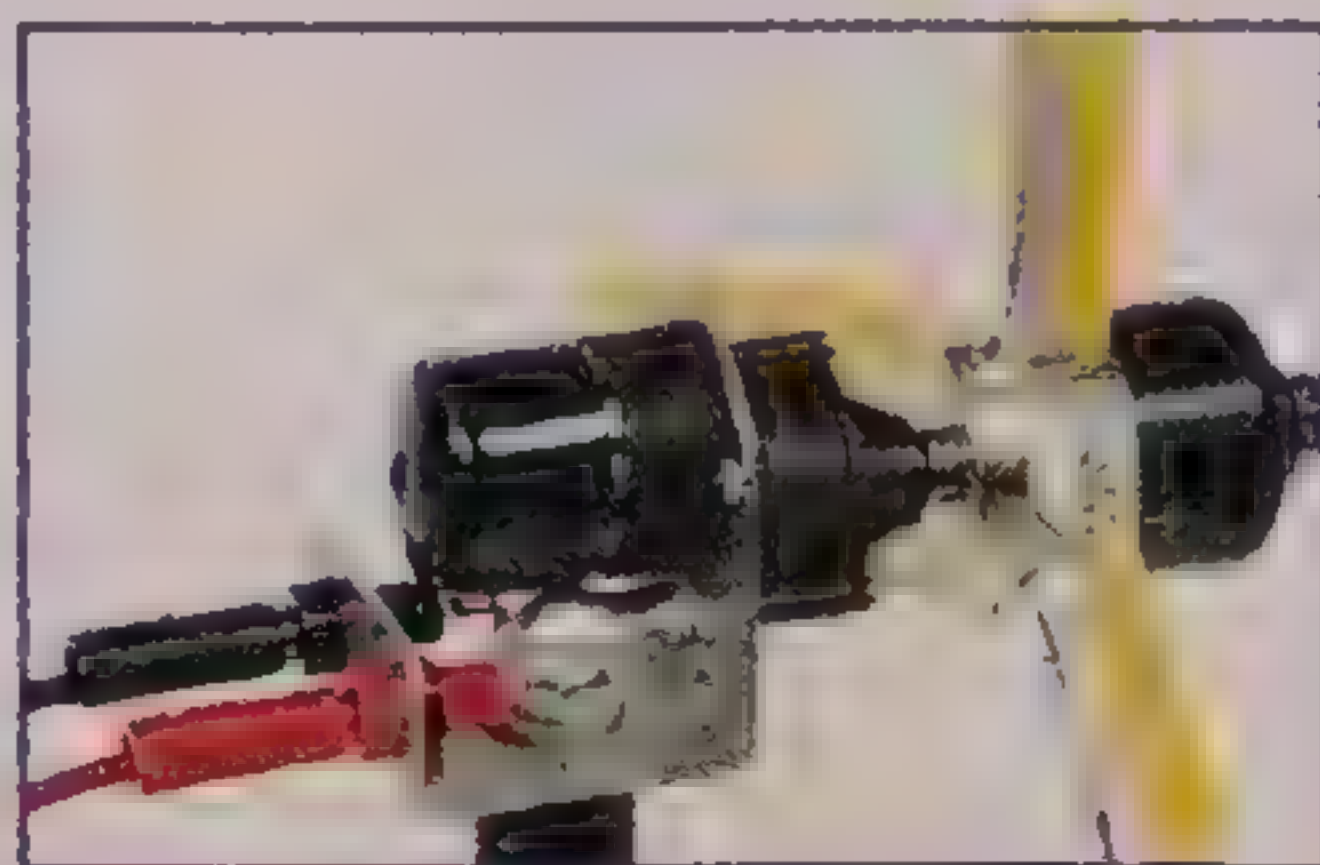
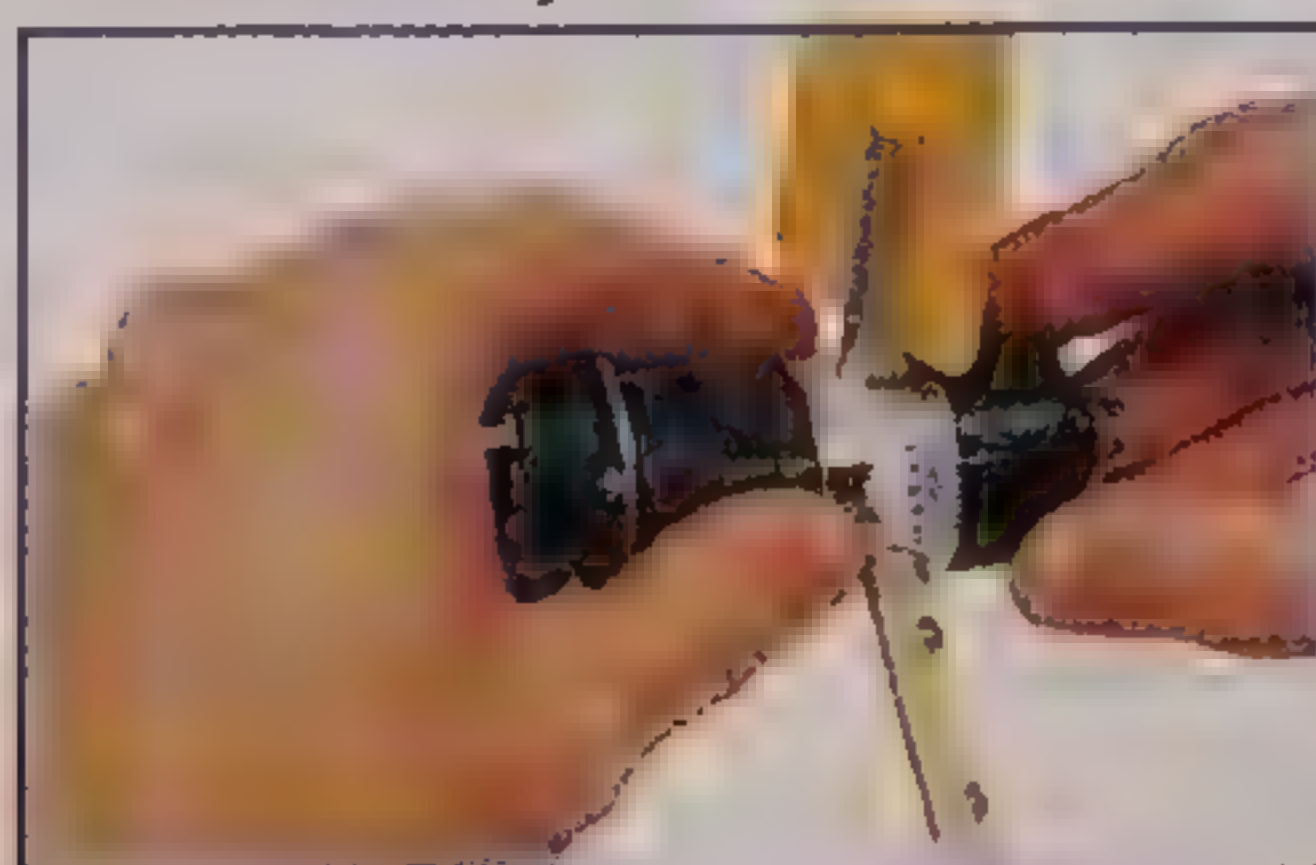
Capturing the wind's energy is easier than ever with Pitsco's new wind generator.

Show students how alternative energy is created by harnessing the wind produced by a 12" table fan. Experimenting with different blade pitches is a breeze with the front adjustment knob that moves all three blades simultaneously. The *WinDynamo II*, which can produce up to a half amp at 1.5 volts, features a stackable banana connector for adding a voltage meter.

This wind generator also comes with an activity board for demonstrating how to convert the electricity into light, sound, and mechanical energy. Requires a 12" table fan or real wind; neither are included. Some of the activities included with the *WinDynamo II* require the use of a multimeter.

Z728400—\$295

Z728623 (12" Table Fan)—\$49.50



WIND GEN KIT

Here is a mind-blowing statistic: Wind energy has the potential to supply all the electricity needed in the United States. Introducing students to this renewable energy is a breeze with the *Wind Gen Kit*.

With this kit, students quickly build a windmill that catches a breeze from a fan and converts it into energy. Students see this energy when it lights a bulb attached to the motor. Or, they can wire several mills together to power larger devices such as a radio or small motors.

The *Wind Gen Kit* features a motor with a pre-soldered bulb and laser-cut parts that fit together for a clean and easy build. Requires white glue, sold separately.

Z732197—\$12.95

WIND GEN VIDEO



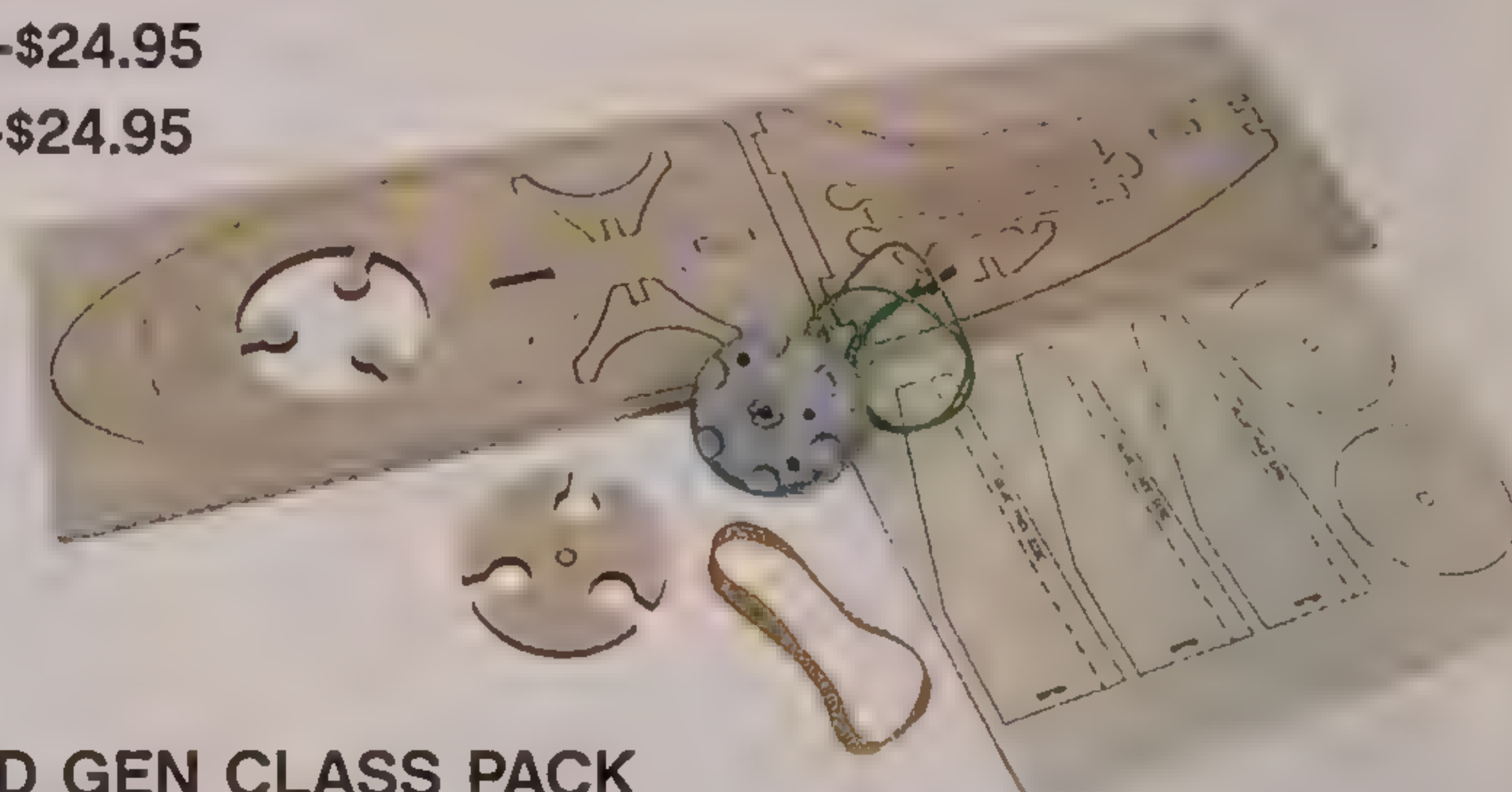
Putting together the *Wind Gen Kit* is a breeze when you have this video guiding the way.

Just follow these clear steps to build our laser-cut kit, and your students will be experimenting in no time! And along the way, they learn about the importance of wind energy and its amazing potential. Time: Approximately 12 minutes.

Level: Intermediate-High School

Z732255 VHS—\$24.95

Z732913 DVD—\$24.95



PITSCO WIND GEN CLASS PACK

You'll breeze through a wind energy activity with this class pack that pulls together everything you need! Use the included *Wind Gen Kits* to show students how the wind can be converted into electrical energy.

Includes enough parts, materials, and instructions for 25 students. Requires white glue such as *HD Bond Adhesive*, sold separately.

Z732470—\$290

PITSCO SAVONIUS ROTOR KIT

It's easier than ever to demonstrate this alternative windmill.

The *Savonius Rotor* is a low rpm, high-torque, vertical-axis wind generator that harnesses wind – no matter what direction it's blowing! Plus, this design features laser-cut wood pieces, pre-cut slots, and alignment marks to ensure proper placement of all parts.

Great for curriculum on electricity, alternative energy, or environmental science, the *Savonius Rotor* is perfect for both teacher demonstrations or as a student construction activity.

Rotor dimensions: 12-1/4" x 5-1/4". Requires soldering. Requires *HD Bond* or similar construction glue, sold separately.

Z730132—\$22.50





PITSCO ELECTRIC ENERGY PROP RACER KIT

This unique vehicle is part plane, part car – although it moves on wheels, it is battery powered and mobilized by a plane propeller. The kit includes CDs for wheels, CD hubs, balsa wood material for the body, a battery holder, and a propeller. Some assembly required. Requires two AA batteries, sold separately.

Level: Middle School

Z725784—\$12.95



SWITCH ON! ELECTRONIC BUILDING BLOCK SET

With this innovative set, children as young as eight can discover the basic principles of electronics. In the same way that children build towers with wooden blocks, they can build real, functioning electrical circuits with *Switch On!*

From the most basic to the intricate, more than 40 different circuits can be built with the color-coded components. Components are large and easily manipulated by small hands. Set includes battery box, electric motor, fire engine siren, flashing doorbell, diode, potentiometer, resistors, transistors, capacitors, and conductors – 50 pieces in all!

Includes complete step-by-step instructions and a base building plate. Requires four AA batteries, sold separately. Ages 8+.

Z756121—\$59.95

Z751046 AA Batteries (pkg of 2)—\$1.95



PITSCO SIMPLE CIRCUITS BOARD

Students learn the basics of simple series and parallel circuits with this hands-on activity board. Comes with a double-pole, double-throw switch, a DC motor, two lights, and a DC power supply (includes two C batteries).

Components are connected with screw/clamp-type connectors and included jumper wires.

Unit is approximately 12" x 15".

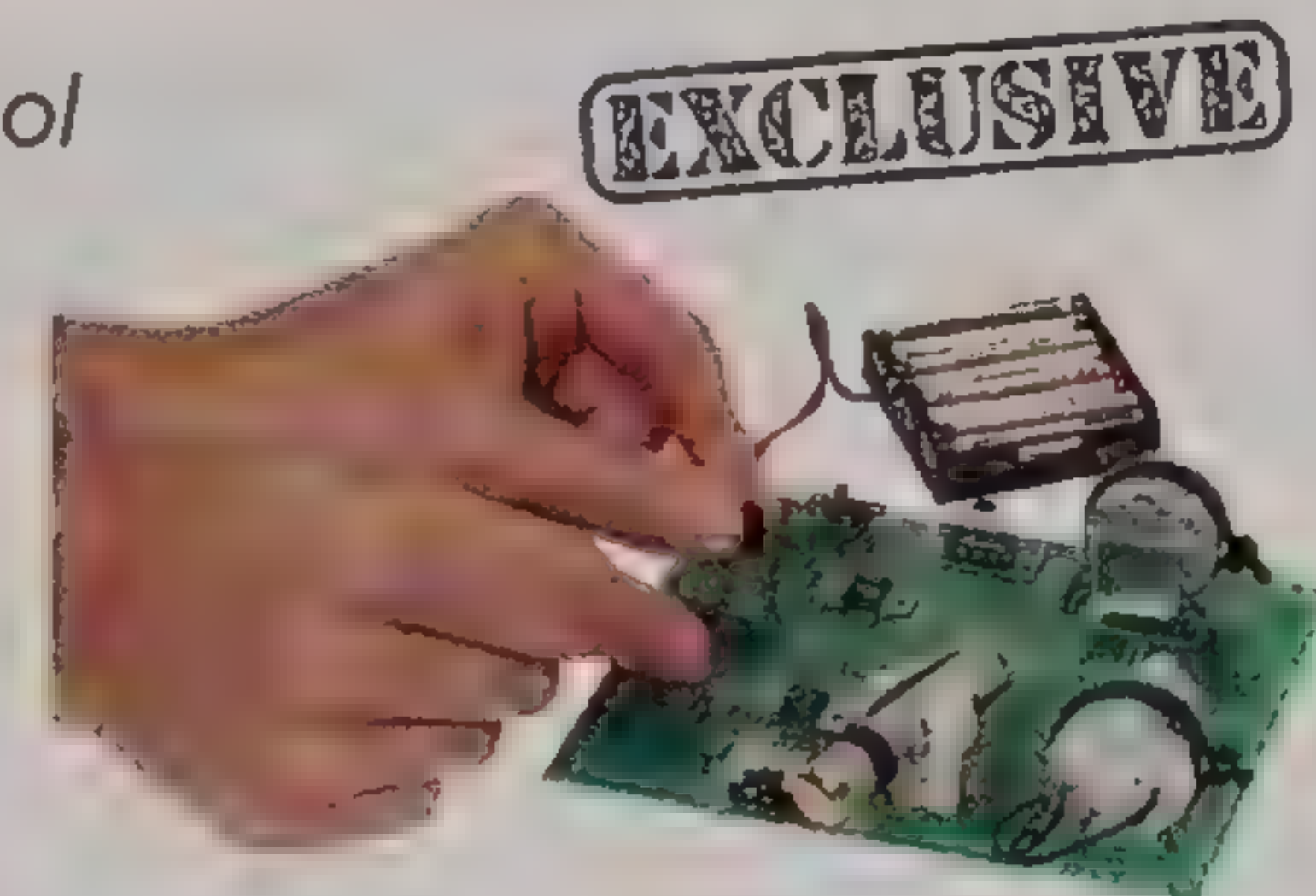
Z754535—\$139

PITSCO ELECTRIC ENERGY PROP RACER CLASS PACK

This *Electric Energy Prop Racer Class Pack* includes enough materials for 25 students, so each student can build their very own prop racer. AA batteries for the class pack sold separately.

Level: Middle School

Z725785—\$199



PITSCO LASER SHOW – THE KIT

From the concert hall to your classroom, laser lights are a captivating sight. Pitsco's *Laser Show – The Kit* is a great way to take advantage of students' interest in lasers to teach them soldering skills, circuitry, and how reflections and geometry are used to direct the laser's path.

This second-generation design offers a more streamlined look and construction, a simplified power source, and a laser. Varying the laser pattern is as simple as altering the speed and direction of two motorized mirrors.

The kit includes motors, mirrors, circuit board, wiring, control switches, laser, and four AA batteries.

Z728360—\$75

ELECTRO WIZ KITS

These great little kits can help kids as young as five discover the principles of electricity and magnetism. The full-color booklets feature 3-D illustrations and concise, kid-friendly instructions. The kits include everything kids need to complete several fun and simple experiments.

The *Electricity Kit* includes electric motor, four color-coded alligator leads, pinwheel, lightbulb and holder, buzzer, LED, hard plastic storage case, 36-page book, and more. The *Magnetism Kit* includes heavy-duty mega magnet, compass, iron filings, magnet wire and string, stickers, plastic storage box, 40-page booklet, and more.

Level: Early Learning-Middle School

Z756081 Electricity Kit—\$19.95

Z756082 Magnetism Kit—\$19.95



SOLDERING IRON

With a shorter barrel, this *Soldering Iron* makes a great fit for smaller hands. Reaching up to 750°F, it also features a heat- and impact-resistant handle, stainless steel barrel, and 1/8" nickel-plated tip that can be replaced. For safety, the *Soldering Iron* has an indicator light to signal when the iron is on. Comes with an iron support stand and instructions. UL approved.

Z731381—\$17.95

SOLDER

60/40 rosin core solder, .032 diameter, comes in 1/2-ounce dispenser.

Z733538—\$2



Magnetic Levitation

PITSCO
LEADERS IN EDUCATION



Save \$17

GS
GETTING STARTED

EXCLUSIVE

PITSCO MAGLEV VEHICLES – GETTING STARTED PACKAGE

Everyone in the class has a shot at levitation with our new *Maglev – GS Package*. The package has enough materials for 25 students, including 25 car templates, 25 pre-cut card-stock bases, 100 ceramic magnets, a *Maglev Track*, and a *Dr. Zoon Maglev Video*.

The *Maglev Vehicles – GS Package* includes the following products that can also be ordered individually:

- Z726000 *Maglev Track*.....\$129
- Z726224 *Levigator Class Pack*.....\$59
- Z757240 *Dr. Zoon Maglev Vehicle Video*.....\$24.95

Z726612 *Maglev Vehicles – GS Package*—\$195

A \$212.95 value!



MAGLEV VEHICLES GETTING STARTED TEACHER'S GUIDE

Students will find this guide's activities truly attractive – even when they discover just how truly repulsive they are! Using the repulsive force of like magnetic poles, maglev vehicles are an amazing mode of transportation that encourages understanding of magnetic repulsion, friction, propulsion systems, equations, analyzing and graphing data, and more.

The *Maglev Vehicles GS Teacher's Guide* contains ITEA, NCTM, and NSTA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 95 pages.

Level: Middle School-High School

Z759613—\$24.95



PITSCO DR. ZOON MAGLEV VIDEO

Look, it's Dr. Zoon with no visible means of support!

It's true! With magnetic levitation, objects can be levitated, or held floating in midair, by using the force of magnetism. In this video, Dr. Zoon illustrates some of the scientific principles behind magnetic levitation, and he goes step-by-step through the process of building and testing a maglev vehicle.

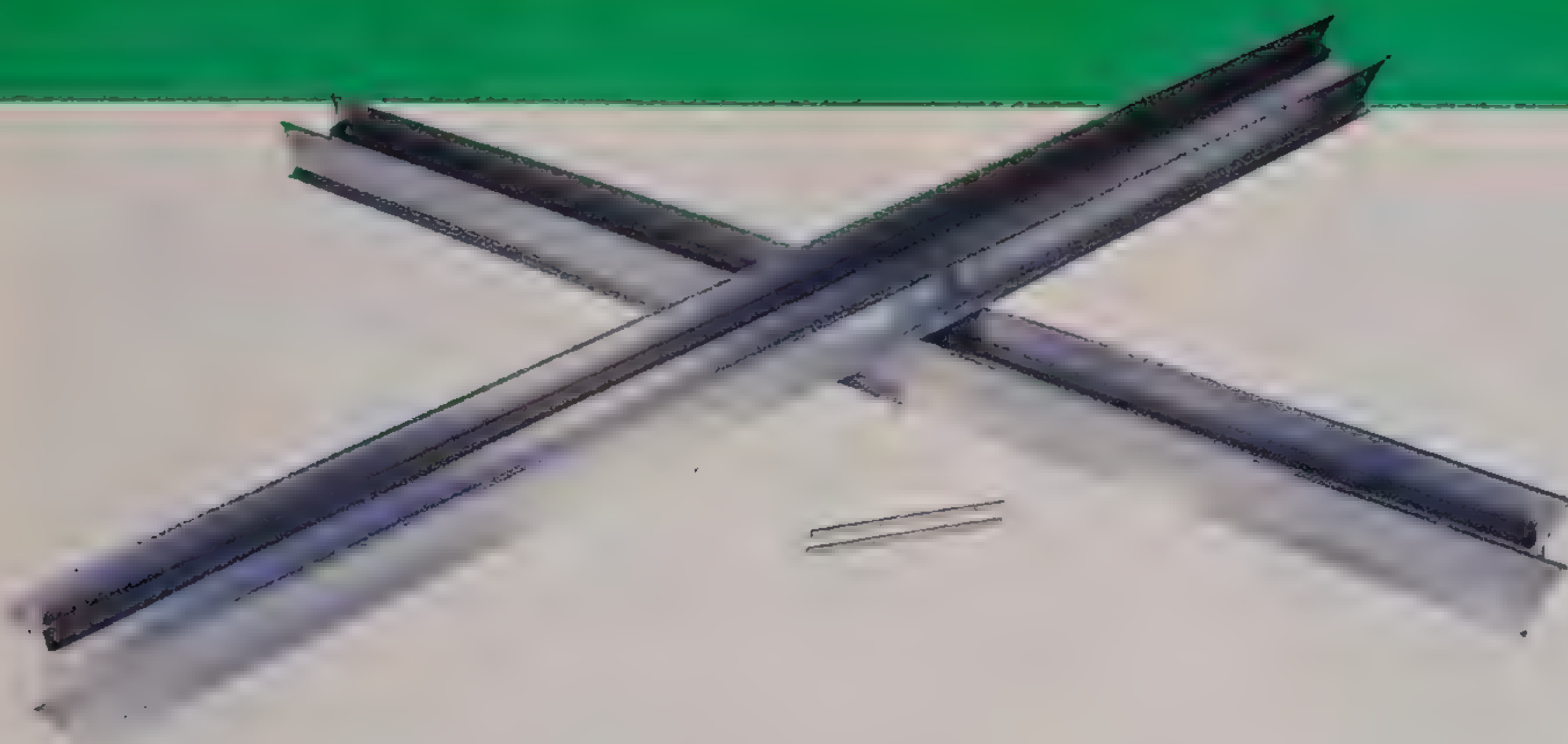
So don't be in a state of flux – magnetic flux that is – get the uplifting facts about magnetic levitation. Closed-captioned. Time: 15 minutes.

Level: Middle School-High School

Z757240 VHS—\$24.95

Z759748 DVD—\$24.95





PITSCO MAGLEV TRACK

How can you have a race when your wheels don't touch the ground? Welcome to the world of levitation – no yoga required! Our *Maglev Track* is a great way to teach your students the technology of magnetic levitation while letting them experience science on the fast track.

For their starter car, we have included our *Levigator Kit* along with the track. This kit gives students a tough base made of precut card stock and ceramic magnets that keep the car afloat above the racing track.

The *Maglev Track* includes two aluminum 4' tracks that can be lined up end-to-end or placed alongside one another for races, as well as four 4' strips of magnet that act to repel your car and keep it in the air. Includes two pins to hold two track pieces together.

Z726000—\$129

ADDITIONAL 4' SECTION OF TRACK

Purchase additional sections of track to make a 12-foot, 16-foot, or even longer *Maglev Track*. Not compatible with previous maglev tracks.

Z726600—\$79

UNDERSTANDING: MAGNETISM VIDEO

Earth's magnetic soul is revealed in this in-depth look at magnetism. Magnets can be as big as the planet we live on or as small as the miniscule magnets in disks. They are found in the machinery and gadgets that surround us. While some species have a built-in sense of magnetism used for migration, humans have learned to use magnetism to develop gadgets, machinery, medical advancements, and more. Without magnetism, we couldn't even make this video!

Includes a teacher's guide. Closed-captioned.
Time: 51 minutes.

Level: Middle School-High School

Z759117 VHS—\$59.95



MODERN MARVELS: BULLET TRAINS VIDEO

If you've ever seen a movie with a train in it, the first thing you probably think of is either the old whistle-blowers of the early twentieth century or the modern railway cars of today. This video introduces you to a much different train: the high-speed, high-tech locomotives of today's railways. These bullet trains travel more than 300 miles per hour! And although most still rely on technology that is more than a century old, this video looks into their possible successors – locomotives that use magnetic levitation to coast. Includes a behind-the-scenes look at the fastest trains ever made – the *Shinkansen* (the original bullet train), the *Acela*, and the *TGV* – and features interviews with high-profile leaders of the train industry. Time: 50 minutes.

Level: Middle School-High School

Z732919 DVD—\$29



PITSCO LEVITATOR KIT

Students who need a few extra vehicles to race up and down the *Maglev Track* can build their own with this *Levigator Kit*. Two patriotic red, white, and blue cutout car designs are included, as well as four ceramic magnets and a tough, precut card-stock base. Requires double-stick tape for construction, sold separately.

Z726223—\$3.95



PITSCO LEVITATOR CLASS PACK

Provides enough material for 25 students. Includes:

- 50 sheets of precut card stock
- 50 "fold and float" paper bodies
- 100 ceramic block magnets
- Instructions

Z726224—\$59

Structures



STRUCTURES SET **EXCLUSIVE**

This 461- element set expands upon the experiences of the *Early Structures Set* and provides a more in-depth exploration of structures. Students will discover many structure concepts including stability within bridges and towers, forces on structures, and strength of materials.

They discover these concepts by designing and building structures from various materials, such as corrugated plastic sheets, studded string, and wooden sticks. Because the materials are low cost, the models can be destruction tested. Includes:

- Instructions for 20 models
- Force meter – a clever device that students build from LEGO® elements to measure the force placed on a structure

Z979618—\$84.95



Save \$33

EXCLUSIVE

**GS
GETTING STARTED**

STRUCTURES – GETTING STARTED PACKAGE

Need more engaging materials to teach hands-on lessons about scale and structure? This is it!

The LEGO® Education *Structures – Getting Started Package* is an excellent way to teach structures concepts such as stability, force, load capacity, material strength, and much more. And because the *Structures Set* is comprised of LEGO bricks and other reusable building materials, it can be used over and over for years of classroom lessons.

This package contains all of the student sets and teacher materials for a class of 24 students.

- Z979618 Structures Sets (12 sets included in GS package) each set.....\$84.95
- Z909618 Structures Activity Pack.....\$29

Z991149 Structures – GS Package—\$1,015

A \$1,048.40 value!

STRUCTURES ACTIVITY PACK

The guide contains all the information needed by teachers to orchestrate a successful unit with the *Structures Set*. There are 13 copymaster worksheets with teacher notes, background information, templates, and one copy of the *Concept Guide: Bridges, Towers and Other Structures*.

The materials are designed for classroom activities – from exploring and investigating structure concepts to their application in problem-solving activities.

Teacher's Resource

Z909618—\$29



THE BIG PICTURE: STRUCTURES TEACHER PACK

Designed for use with the LEGO® Education Structures Set, this teacher pack includes a comprehensive teacher's guide with notes for covering the concepts of form and function, strength and stability, forces and loads, building materials, and force meters. Black-and-white student-worksheet masters are included on a CD-ROM and can easily be printed and copied for an entire class.

Z991170—\$49



EARLY STRUCTURES SET

This hands-on set will help teams of two or three students learn about balance, building, stability within structures, design, and problem solving as they build models. The set includes teacher's notes, activity suggestions, and pictorial investigation cards. Includes 107 DUPLO® elements.

Z779660—\$80.95



TOWN DEVELOPERS SET

Students become city planners with the *Town Developers Set*. With an assortment of basic bricks, windows, and roof pieces, students can plan and build a town, complete with homes, office buildings, a hospital, and more. Cranes and trucks are on hand to do the "heavy" lifting, and there are even trees to complete the landscape. Use this set and the four included inspiration cards to explore differences among types of buildings and cultivate students' understanding of town development and construction work. Includes 1,860 LEGO® SYSTEM elements.

Z779322—\$145.95



MICRO BUILDING SET

The *Micro Building Set* is great for students learning about neighborhoods and communities. With small building plates and various LEGO® bricks, students have their own plot of land and can develop it as they like. With inspiration cards to guide them, your students can build homes, hospitals, ports, churches, business offices, and more! A series of activities written especially to complement this set are available to download for free from www.LEGO.com/education/default.asp. Includes 1,650 LEGO SYSTEM elements.

Z779324—\$116.95

Straw Structures

PITSCO
LEADERS IN EDUCATION

EXCLUSIVE

Save \$13

GS
GETTING STARTED

PITSCO STRAW STRUCTURES – GETTING STARTED PACKAGE

Structures start taking shape with this Getting Started package. Students explore structures and geometric shapes with instruction from Dr. Zoon and the *Structures* book. This package provides enough materials for 25 students.

The *Straw Structures – GS Package* includes the following products that can also be ordered individually:

- Z757050 Dr. Zoon Straw Structures Video.....\$24.95
- Z758497 Polyhedra Poster.....\$9.95
- Z758586 Plastic Straws (pkg of 1,000) (2 packages included in the GS package) each pkg.....\$9
- Z754853 Pipe Cleaners (pkg of 100) (7 packages included in the GS package) each pkg.....\$3

Z723617 Straw Structures – GS Package—\$60
A \$73.90 value!

STRAW STRUCTURES GETTING STARTED TEACHER'S GUIDE

Structures made with straws and pipe cleaners might look simple, but they offer a wide variety of learning flavors. Geometric figures and their strengths, ratios, structural designs, and static forces are some of the subjects this guide will help you and your students to really soak – er, suck – up!

The *Straw Structures GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed, teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 95 pages.
Level: Middle School-High School
Z759728—\$24.95

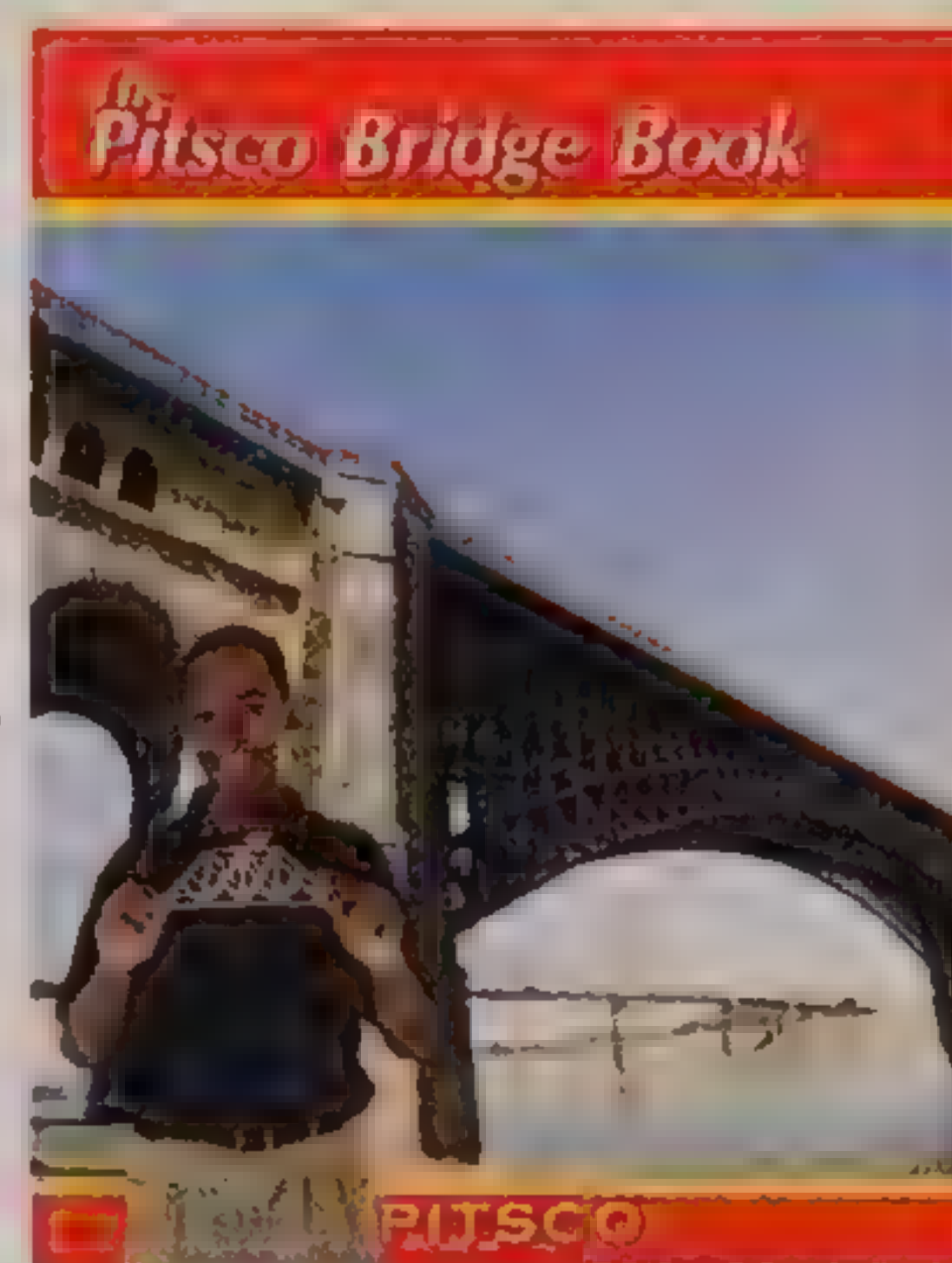


THE PITSCO BRIDGE BOOK

A complete guide to model bridge building. Discusses the history of bridges, types of trusses, glue joints, and construction ideas.

Illustrated student guide includes competition rules, drawings, and a crossword puzzle to be filled out by the student. Can also be used as a teacher's resource. Paperback, 22 pages.
Level: Middle School-High School
Teacher's Resource

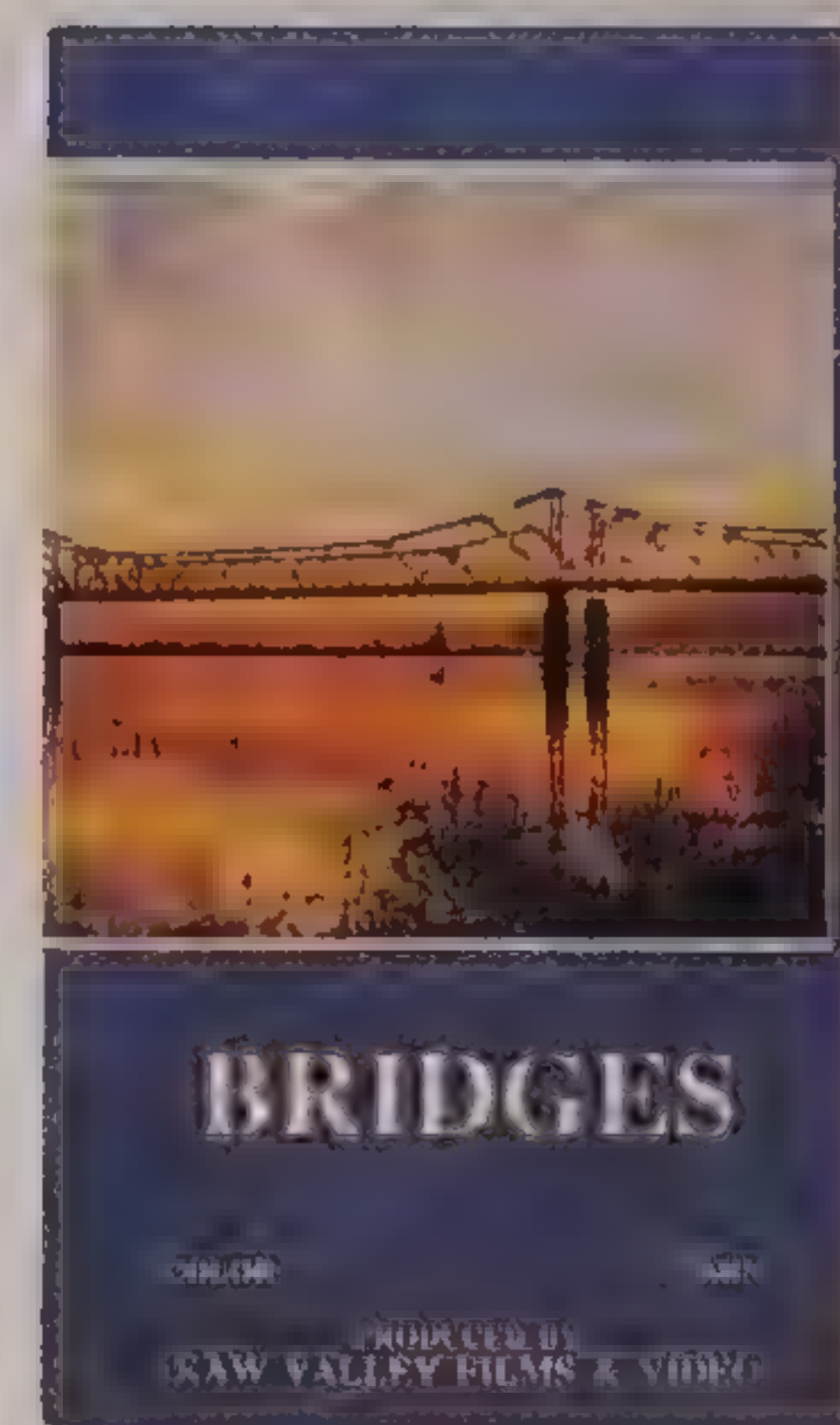
Z732455—\$2
10 or more—\$1.80 each



BRIDGES VIDEO

A stimulating way to introduce students to a bridge building unit! *Bridges* starts in the beginning – when nature provided our first bridges: logs, rocks, hanging vines – and chronicles the progression of bridge technology: wood, stone, iron, steel, and reinforced concrete.

Bridges also explores the various uses of bridges as well as the four basic bridge designs: beam, arch, suspension, and pontoon. It includes famous bridges and features exciting footage of the spectacular collapse of the Tacoma Narrows Bridge.
Time: 22 minutes.
Level: Middle School-High School
Z752105 VHS—\$49.95



PITSCO DR. ZOON STRAW STRUCTURES VIDEO

Straws are not just for sipping – at least not when Dr. Zoon is around!

Join Dr. Zoon as he explains some basic principles of how structures work. To illustrate these principles, he uses straws and pipe cleaners to build a variety of structures, including many geometric solids.

Along with the demonstrations, he shows students how to build their own straw structures – a hands-on activity that will become a must for science and technology classrooms! Closed-captioned. Time: 24 minutes.

Level: Intermediate-Middle School

Z757050 VHS—\$24.95

Z759703 DVD—\$24.95

PITSCO DR. ZOON STRUCTURES DVD SERIES

Need more structure in your classroom? Just grab some straws, toothpicks, or balsa wood – and this DVD series, of course – and bring the strength of structure activities to your students.

For beginners of structure activities, the *Dr. Zoon Straw Structures Video* and *Dr. Zoon Toothpick Bridges Video* build students' understanding of structures, design, and geometric shapes. For more advanced coverage of these concepts as well as forces, construction techniques, and more, the series offers the *Dr. Zoon Bridge Building Video* and *Dr. Zoon Tower Building Video*.

All four programs cover construction, tips, and explanation of concepts related to the featured activity. Closed-captioned. Time: 125 minutes total.

Level: Intermediate-High School
Z759711 DVD—\$69.95



PLASTIC STRAWS FOR STRUCTURES

Use for bridge- and structure-building activities.

Z723733 (1/4" dia x 7-3/4" length, clear) (250 qty)—\$2.50
Z758586 (1/8" dia x 5-3/4" length) (1,000 qty)—\$9
Z756856 (1/4" dia x 10" length) (500 qty)—\$7



PITSCO POLYHEDRA POSTER

Do your students need a little help in the area of geometric shapes? Strengthen their skills with this colorful polyhedra poster. Displays the vertices, edges, and faces of 18 different polyhedrons, including the five regular polyhedrons.

Z758497—\$9.95

ART STRAWS FOR STRUCTURES

Unwaxed paper straws are 16 inches in length. Use for bridge and tower building and architectural models. Straws make lightweight but strong and durable geometric shapes.

Z752843 (4 mm diameter; box of 1,800)—\$33



PIPE CLEANERS

One of the innovative folks here at PitSCO thought of a new way to attach straws together for structures – pipe cleaners. Try it, you'll like it. Colors may vary.

Z754853 (pkg of 100)—\$3

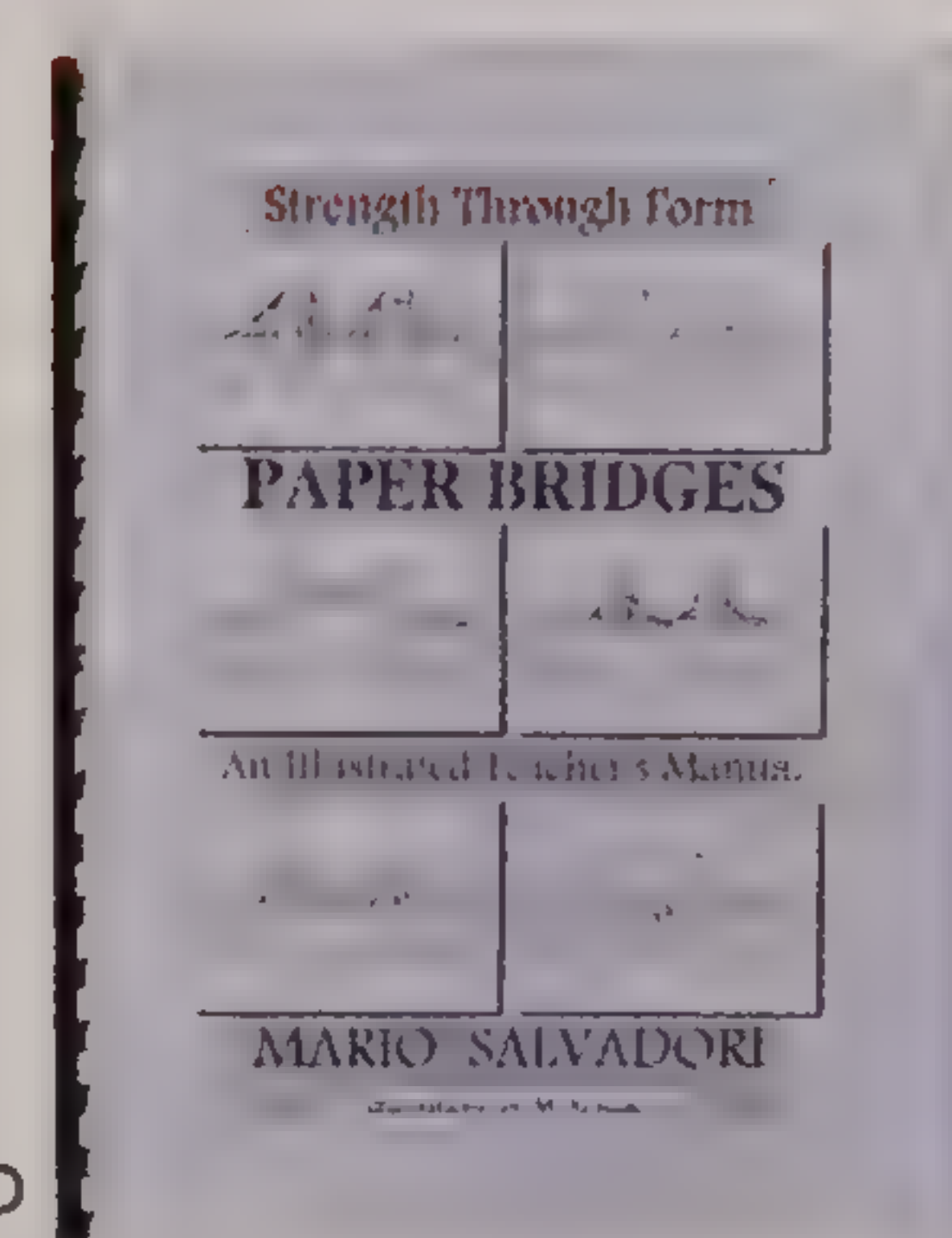
PAPER BRIDGES: STRENGTH THROUGH FORM, AN ILLUSTRATED TEACHER'S MANUAL

Students in Grades 5-9 can acquire a wealth of knowledge while having fun building paper bridges. The fantastic bridge-building activities in this guide introduce students to the engineering concepts of tension, compression, bending, and buckling. Students are led to invent their own models, which stimulate creativity as they experiment with structural concepts. The need for time limits, financial budgets, and team collaboration is also covered. Includes 12 activities. Paperback, 30 pages.

Teacher's Resource

Z754924—\$14

10 or more—\$12.60 each

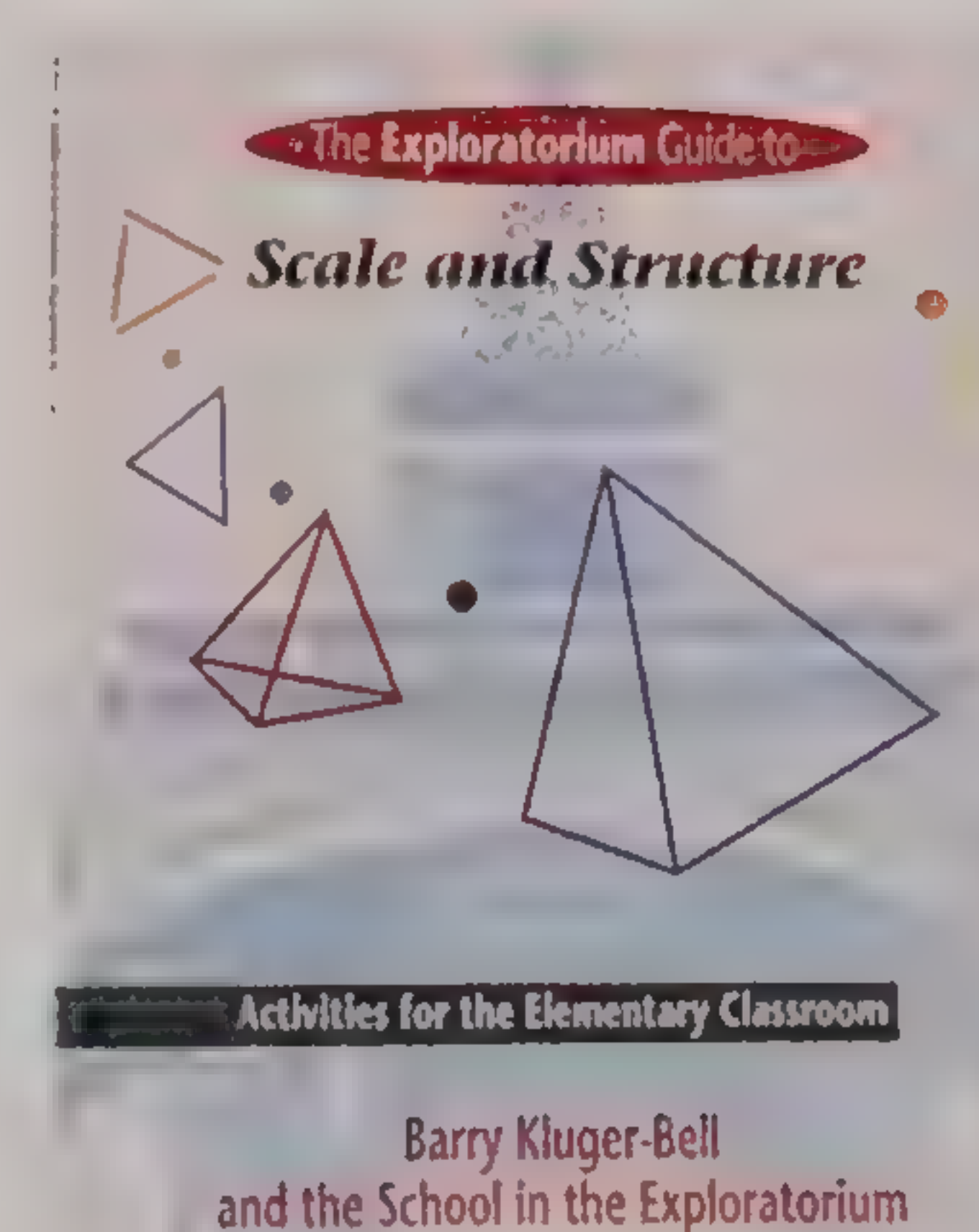


THE EXPLORATORIUM GUIDE TO SCALE AND STRUCTURE

This teacher's resource book is full of structural engineering activities and is great for introducing students to structures. Fun, practical activities teach aspiring engineers about structures and scale. Projects include building with straws, clay, and toothpicks; building paper bridges; building domes; and load testing structures. Filled with helpful illustrations and photos of kids doing the activities. Includes teacher tips, discussion points, and extension options. Paperback, 198 pages.

Teacher's Resource

Z754466—\$39.95



Toothpick Bridges



PITSCO DR. ZOON TOOTHPICK BRIDGES VIDEO

Because the dentist said to floss more often, Dr. Zoon has had to find some use for all those toothpicks!

This simple, yet challenging activity is a favorite among many teachers. Let Dr. Zoon provide a few ideas and step-by-step instructions to ensure success for students.

When asked about the strength of toothpicks, Dr. Zoon replied, "We'll cross that bridge when we get to it." Closed-captioned. Time: 26 minutes.

Level: Intermediate-Middle School

Z757233 VHS—\$24.95

Z759642 DVD—\$24.95

PITSCO TOOTHPICK BRIDGES – GETTING STARTED PACKAGE

These bridges have a great amount of shear strength and are sheer fun for your students. Enough materials for 25 bridges, the *Toothpick Bridge Tester*, *Dr. Zoon Toothpick Bridges Video*, and *Building Toothpick Bridges* book are included.

The *Toothpick Bridges – GS Package* includes the following products that can also be ordered individually:

- Z757233 Dr. Zoon Toothpick Bridges Video\$24.95
- Z751784 Building Toothpick Bridges Book \$29
- Z730003 Toothpick Bridge Tester\$19.95
- Z752058 Empty Glue Bottles (pkg of 25)\$16
- Z751748 Blue Structures Glue (pint).....\$4.50
- Z751742 Square Toothpicks (pkg of 800)
(6 boxes included in the GS package)each \$1.95
- Z750032 Waxed Paper\$2.25

Z723618 Toothpick Bridges – GS Package—\$87

A \$108.35 value!

TOOTHPICK BRIDGES

GETTING STARTED TEACHER'S GUIDE

This *Getting Started Teacher's Guide* is ideal for those pick-y teachers who love toothpick bridge activities but need them to cover a greater span of curriculum. Covering concepts such as tension, force, ratios, efficiency, and truss design, students will learn much more than model building.

The *Toothpick Bridges GS Teacher's Guide* contains ITEA, NCTM, and NSTA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 97 pages.

Level: Middle School-High School

Z759615—\$24.95



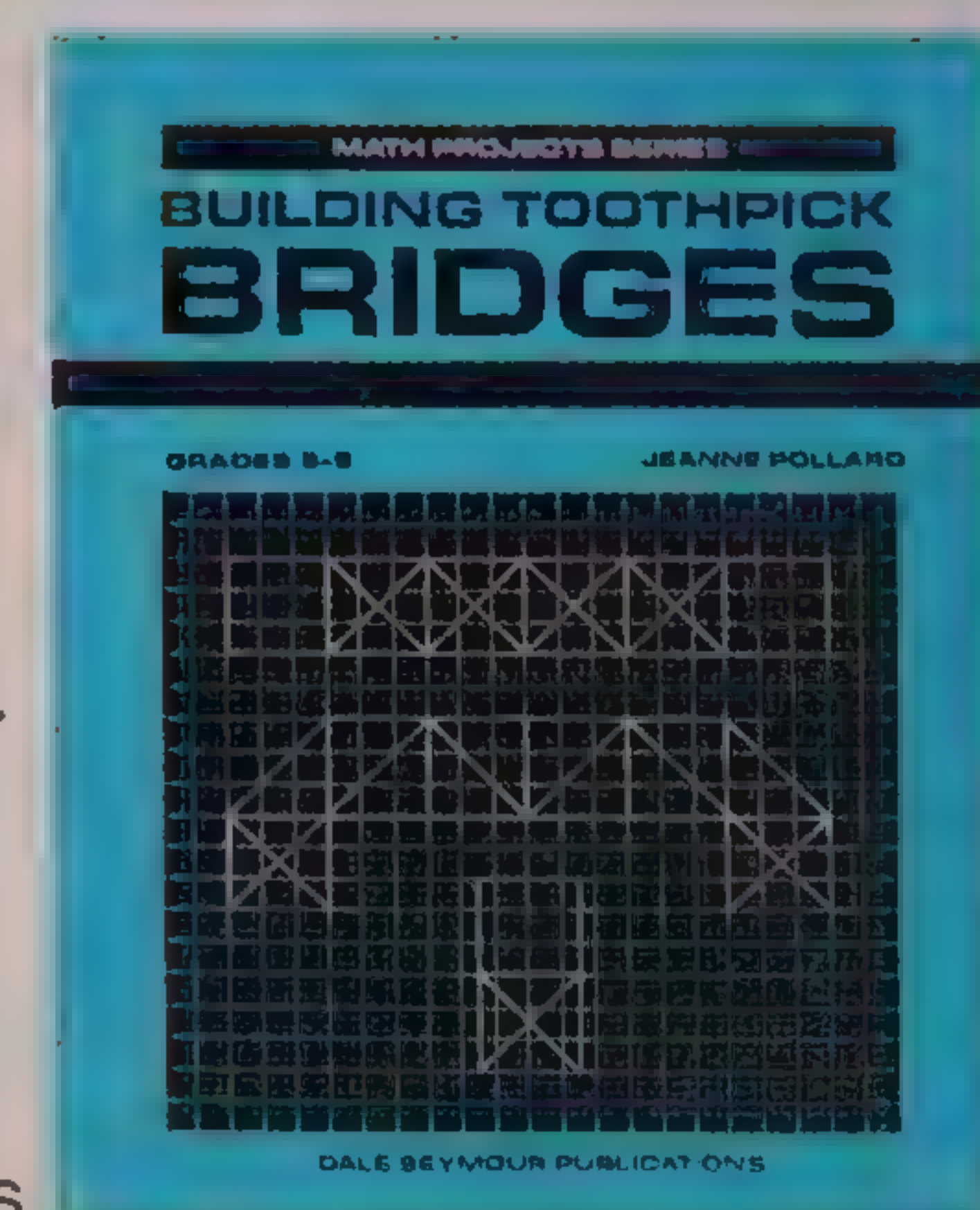
BUILDING TOOTHPICK BRIDGES

Link your math curriculum to the world around you with the motivational ideas in this book. A "company" of students builds a bridge with an architect, project managers, bookkeepers, a budget, and materials. The book provides a practical approach to math, geometry, and social studies through the problem of bridge construction.

For the teacher, the book contains clear guidelines and plans for this valuable unit. Paperback, 30 pages.

Level: Intermediate-Middle School

Z751784—\$29



MASTERPIECE TOOTHPICK BRIDGES

There once were some students
with toothpicks
Who had quite the eye for geometrics.
They started right in
And glued end to end
To come up with bridges fantastic!

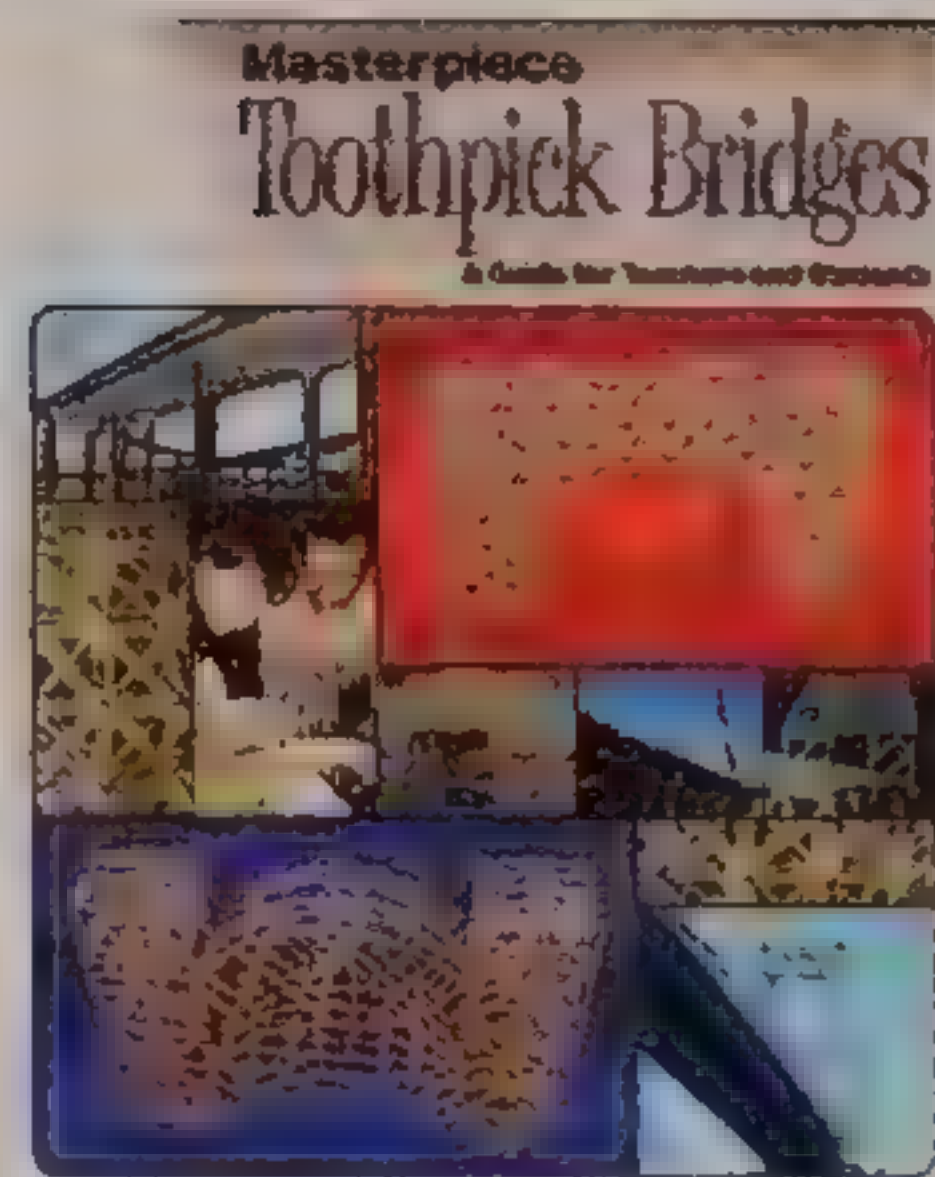
OK, enough waxing poetic. More than just a resource, this book is an activity guide to help teachers and students bridge the gap between building simple toothpick bridges and mastering the construction of a striking toothpick bridge.

Masterpiece Toothpick Bridges offers key design principles needed to construct an elaborate toothpick bridge, a structure unit with detailed lessons, material selection, building techniques and tips, research paper assignment, bridge testing – even tips to get the local media to cover the testing event!

Plenty of photos illustrate the details of this black-and-white book. Paperback, 48 pages.

Teacher's Resource

Z759026—\$19.95



PITSCO TIMBER CUTTER

The *Timber Cutter* is a helpful tool for cutting 1/8" wooden sticks. We recommend it for bridge and tower building as well as other model projects. The see-through safety guard limits finger access to the blade.

A single-edged razor blade provides a clean, accurate cut. Miter marks are molded into the base to use as a reference when making angled cuts. Five extra blades are included.

Z718818—\$19.95

TIMBER CUTTER BLADE PACKAGE

Replacement blades for the PitSCO *Timber Cutter*.

Z718819 (pkg of 5)—\$1.50 10 or more pkgs—\$1.35 each pkg

PITSCO TOOTHPICK BRIDGE TESTER

How much weight can your toothpick bridge support? Here's an easy, economical way to find out. Attach the PitSCO *Toothpick Bridge Tester* to your bridge after the glue is thoroughly dry. Gradually fill the tester with weights until your bridge beats the competition or collapses. Weigh the tester to determine the load capacity (or breaking point) of your bridge. Includes mounting hardware.



Z730003—\$19.95

BLUNT END STRUCTURE STICKS

Try these structure sticks instead of toothpicks. Blunt ends make them safer and allow for more precise joints and stronger structures! The square sticks are 2-5/8" in length.

Z754459 (pkg of 500)—\$1.85

ROUND TOOTHPICKS

2-5/8" long.

Z751741 (pkg of 800)—\$1.50

10 or more pkgs—\$1.35 each pkg

SQUARE TOOTHPICKS

2-5/8" long.

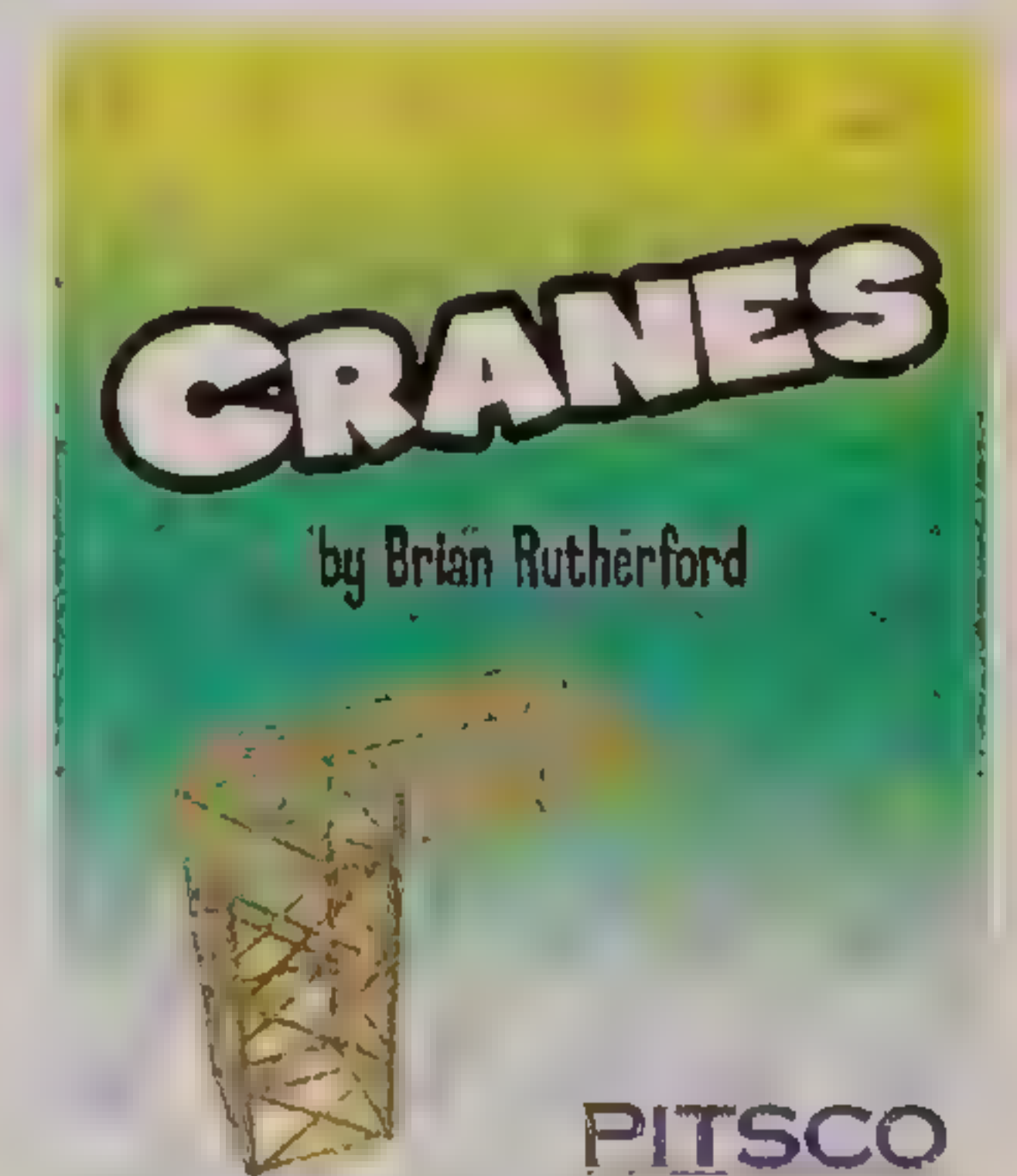
Z751742 (pkg of 800)—\$1.95

10 or more pkgs—\$1.75 each pkg

PITSCO CRANES

The same engineering principles used in the design of a bridge or tower can also be used to design a model crane. Challenge your students and add variety to your program by having them try new engineering problems, such as building a crane. Paperback, 32 pages. Level: Middle School-High School

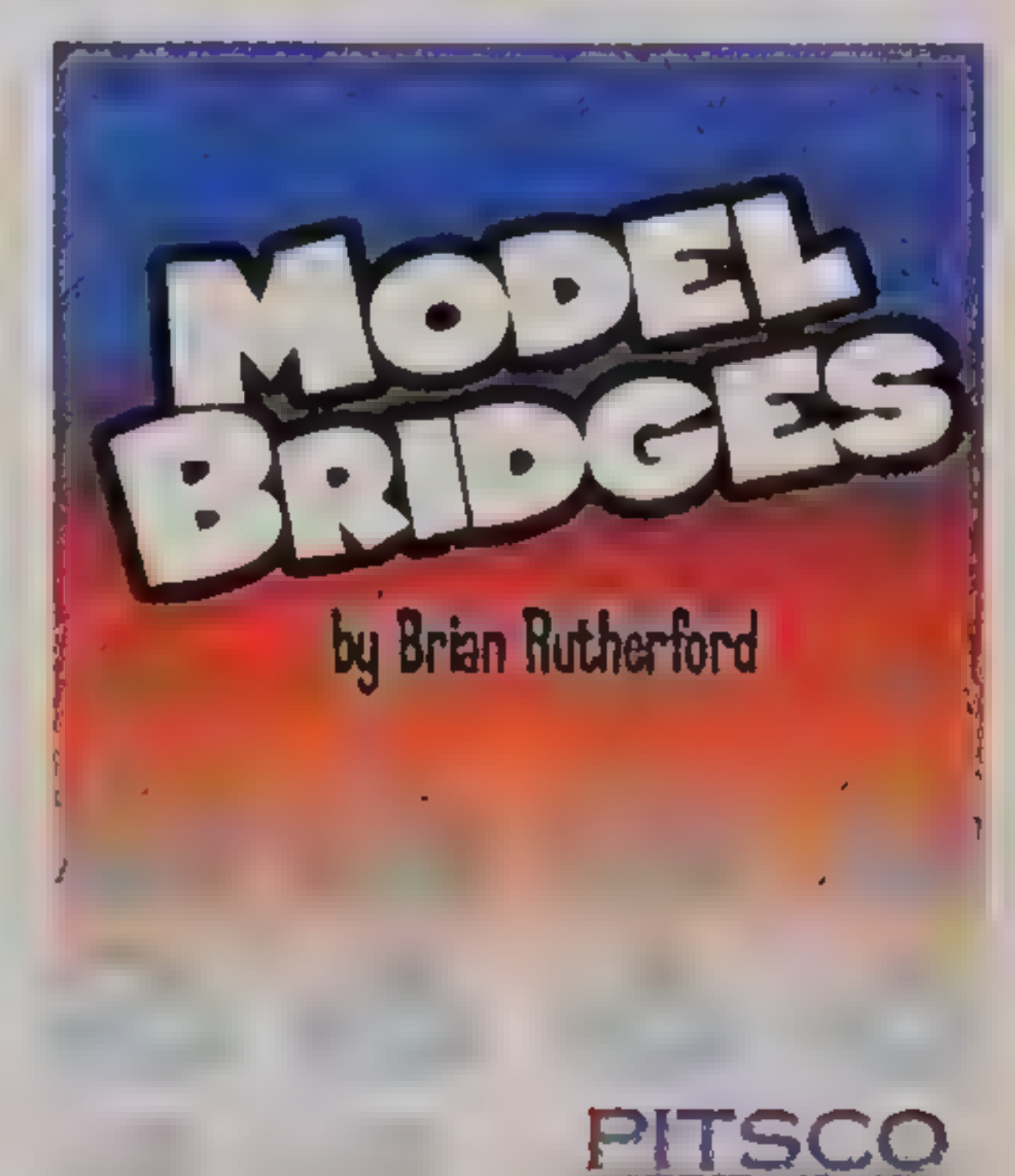
Z757060—\$4.95



PITSCO MODEL BRIDGES

Students will explore structural engineering principles as they apply to the design of bridges, including how to analyze ways in which structures might fail. Instructions are provided so students can follow the design process through sketching, drawing to scale, building, and testing model bridges of their own designs. Paperback, 27 pages. Level: Middle School-High School

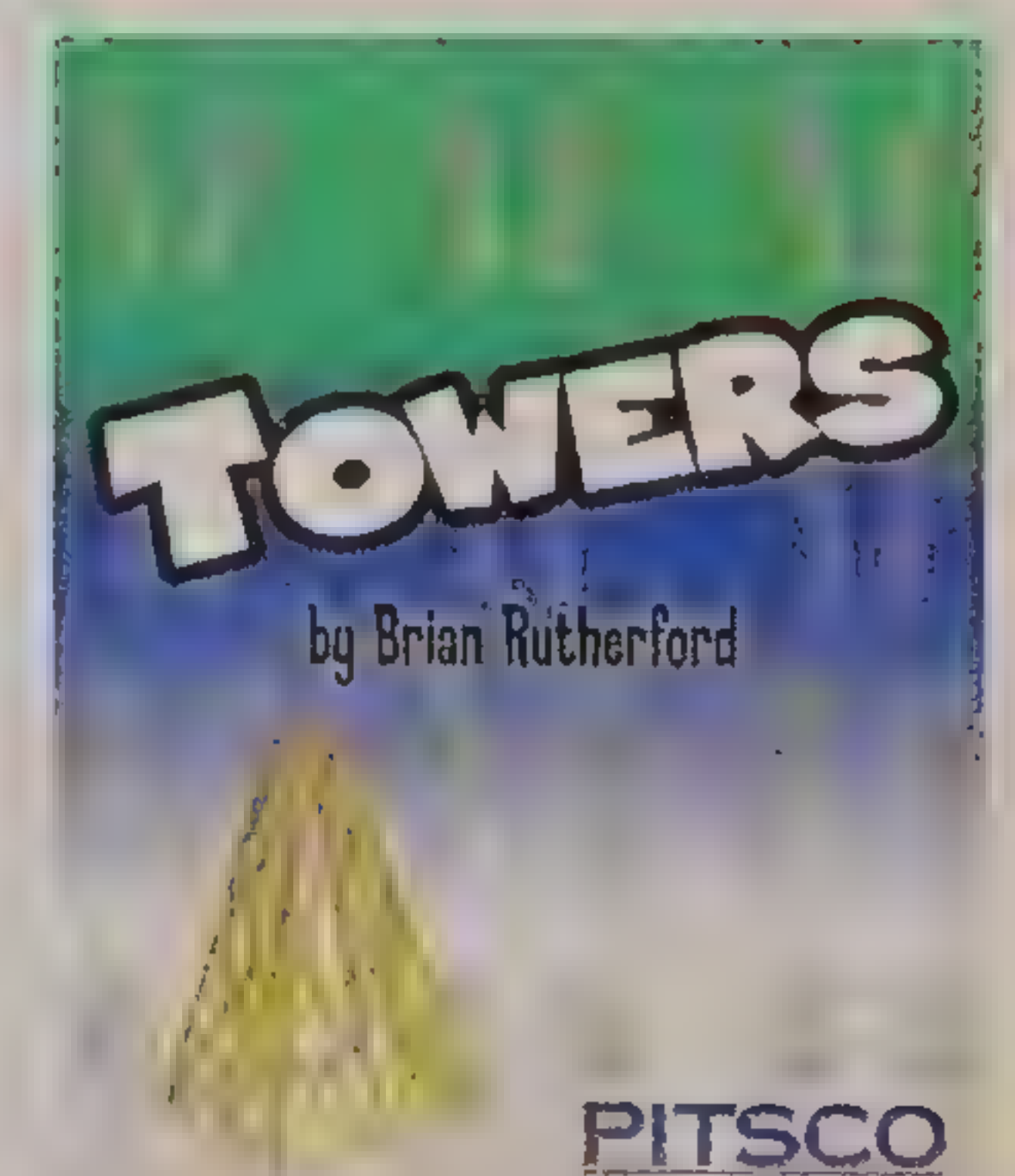
Z757061—\$4.95



PITSCO TOWERS

Discover the secrets of building strong towers! This book investigates structural engineering principles as they apply to tower design. Students follow the design process as they sketch, draw to scale, build, and test their own model towers. Paperback, 32 pages. Level: Middle School-High School

Z757059—\$4.95



Straw Rockets



PITSCO STRAW ROCKET LAUNCHER

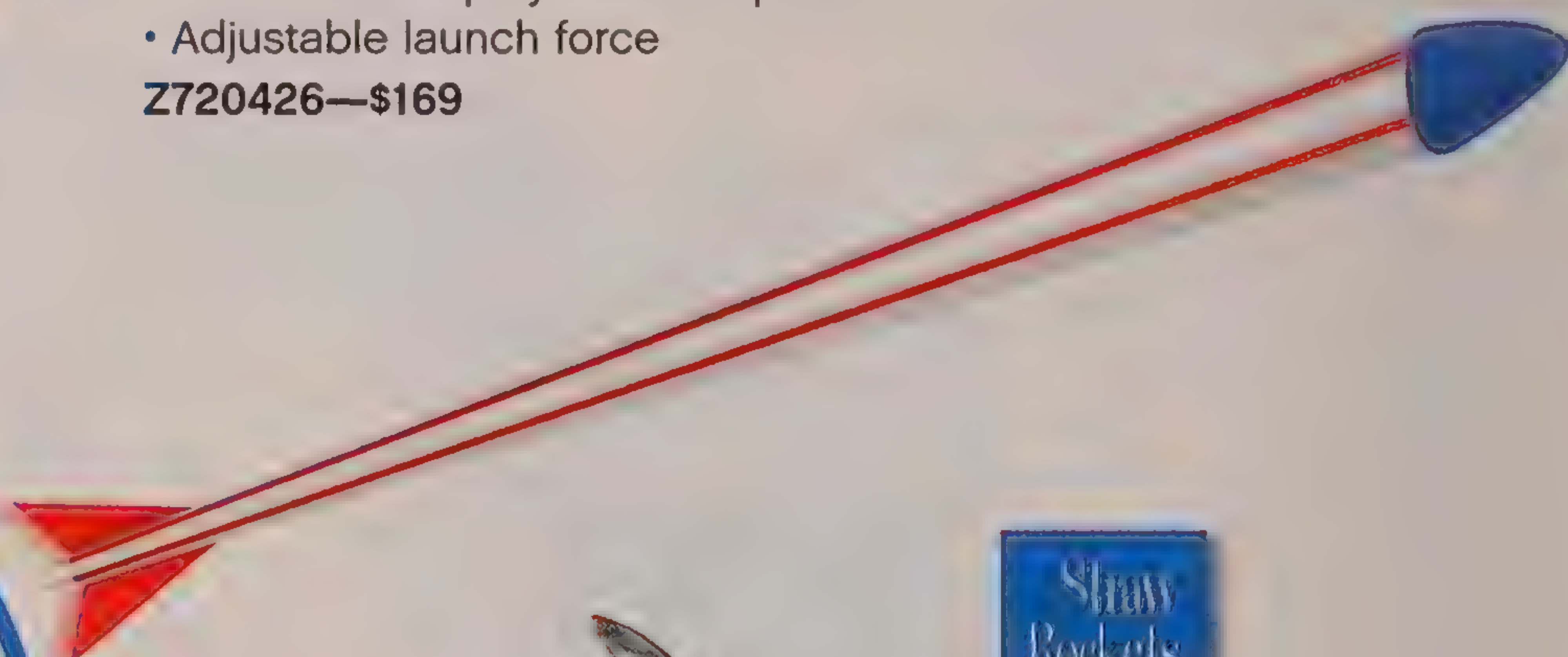
Students can design and build their own miniature straw rockets and test them on the *Straw Rocket Launcher*! Just like early rocket pioneer Robert Goddard, they can conduct scientific experiments by varying the trajectory angle and launch energy. Rockets can be launched to distances up to 50 feet!

The *Straw Rocket Launcher* features extremely simple operation. No power or air source is required; the pneumatic force is developed by releasing a weighted drop rod in the cylinder. The force of the launch can be controlled by varying the release height of the rod.

Building straw rockets is a fun, inexpensive activity and a great way to introduce students to rocketry. Use with *Precision Straws*. Recommended for use in a large, open indoor area, such as a gymnasium. Base size: 9" x 11". Height: 25".

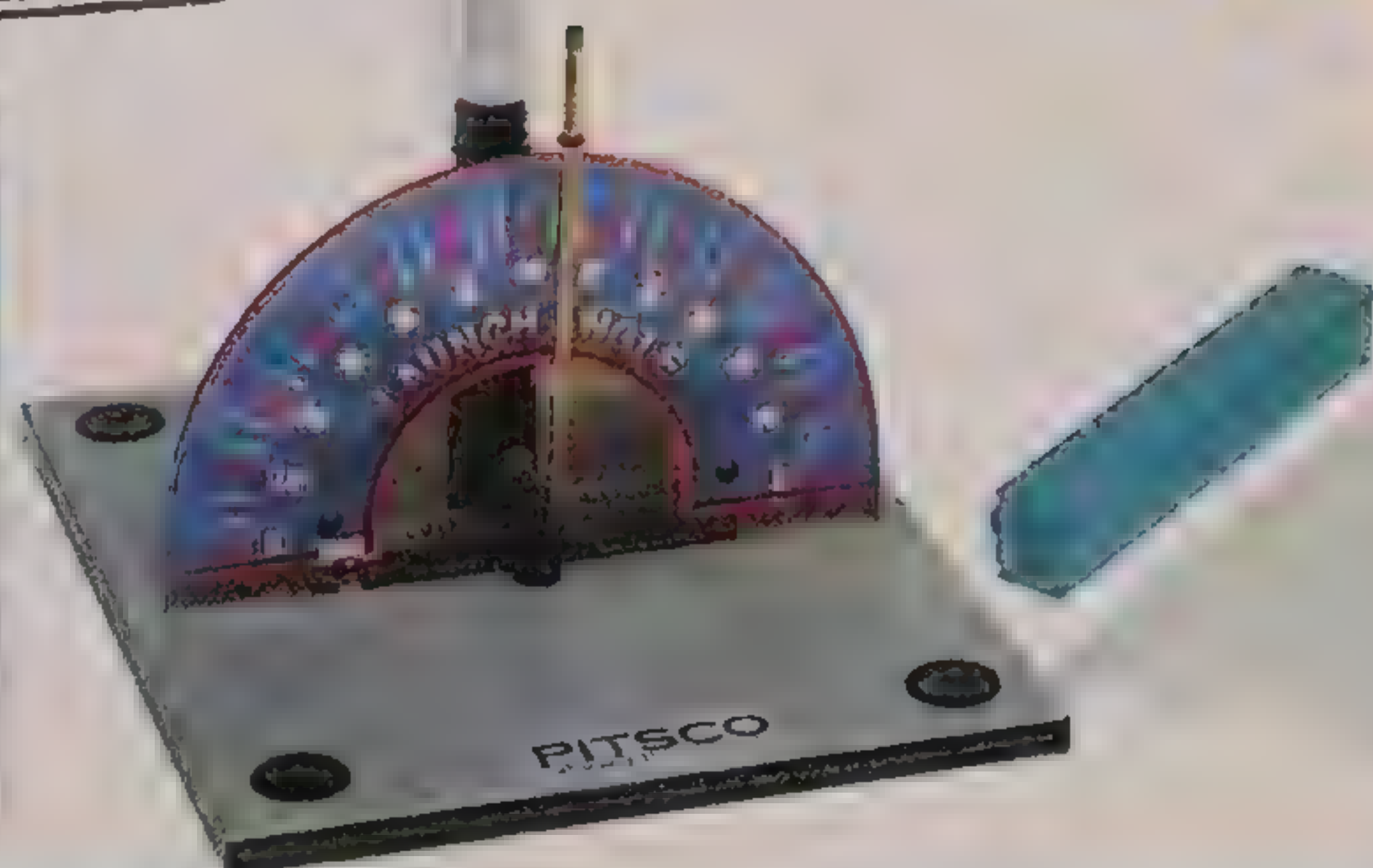
- Launches up to 50 feet
- 1/4" diameter straws
- Simple operation
- Adjustable trajectory angle with angle gauge
- No power or air source required
- Clear tube displays internal parts
- Adjustable launch force

Z720426—\$169



PITSCO
LEADERS IN EDUCATION

EXCLUSIVE



Save \$18

GS
GETTING STARTED



STRAW ROCKETS

GETTING STARTED TEACHER'S GUIDE

Straw rockets might be an introductory rocket activity, but this guide will help you get a lot of educational mileage out of them! With these fun activities, students grasp a variety of subjects including force and motion, thrust, center of gravity, prediction, measurements, and tons more!

The *Straw Rockets GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 92 pages.

Level: Middle School-High School

Z759459—\$24.95

PITSCO STRAW ROCKETS - GETTING STARTED PACKAGE

Building and experimenting with these simple rockets is the perfect way to introduce students to rocketry. And they'll learn a bevy of physics principles in the process! Enough materials for 25 students to build four rockets each. The *Straw Rocket Launcher* and the *Dr. Zoon Straw Rocket Video* are included.

The *Straw Rockets - Getting Started Package* includes the following products that can also be ordered individually:

- Z720426 Straw Rocket Launcher.....\$169
- Z729582 Straw Rocket Class Pack.....\$19.95
- Z759240 Dr. Zoon Straw Rocket Video.....\$24.95

Z729407 Straw Rockets - GS Package—\$195

A \$213.90 value!



PITSCO DR. ZOON STRAW ROCKET VIDEO

Objects flying through the air, projectile motion under scrutiny, forces changing – has the classroom gone wild? No, it's just Dr. Zoon launching into the subject of straw rockets!

Follow along step-by-step as Dr. Zoon builds and launches rockets from the *Straw Rocket Class Pack*. Plus, he'll explain several physics principles that come into play with these nifty rockets. Closed-captioned. Time: 21 minutes.

Level: Middle School-High School

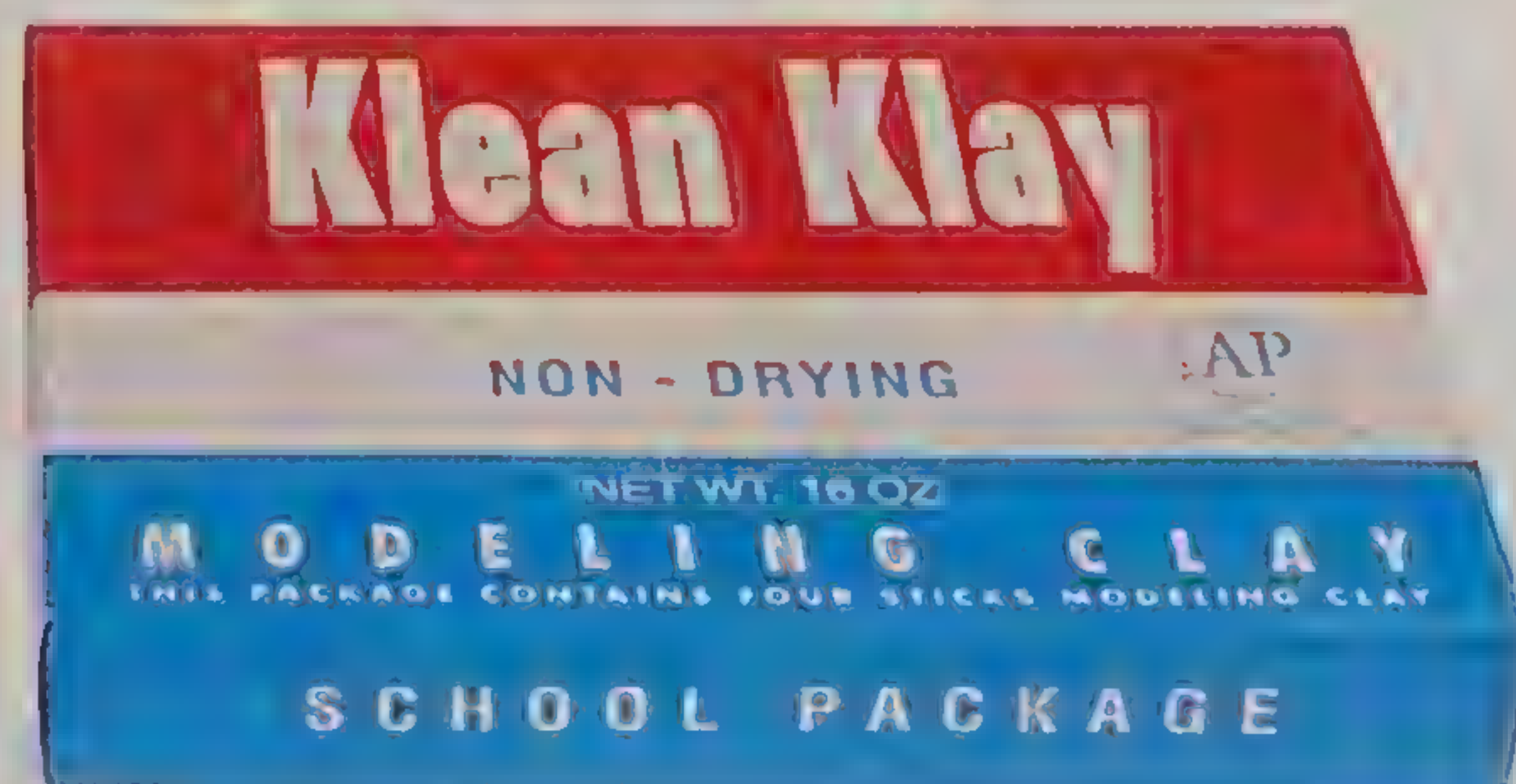
Z759240 VHS—\$24.95

Z759700 DVD—\$24.95

PRECISION STRAWS

No more searching through boxes of straws to find just the right size – these precision straws are manufactured to fit perfectly on the *Pitsco Straw Rocket Launcher*! Made from Mylar, these precision straws are durable, can be glued, and most of all, launch every time! Diameter is approximately .218". Length 8".

Z991001 (pkg of 100)—\$9.95



KLEAN KLAY

Makes great projectiles and straw rocket nose cones.

Z753748 Blue, 1 lb—\$2.95

10 or more—\$2.65 each

POSTER TACK

This mounting putty is great for mounting the nose cone on straw rockets.

Z990071 (2 oz pkg)—\$3.95



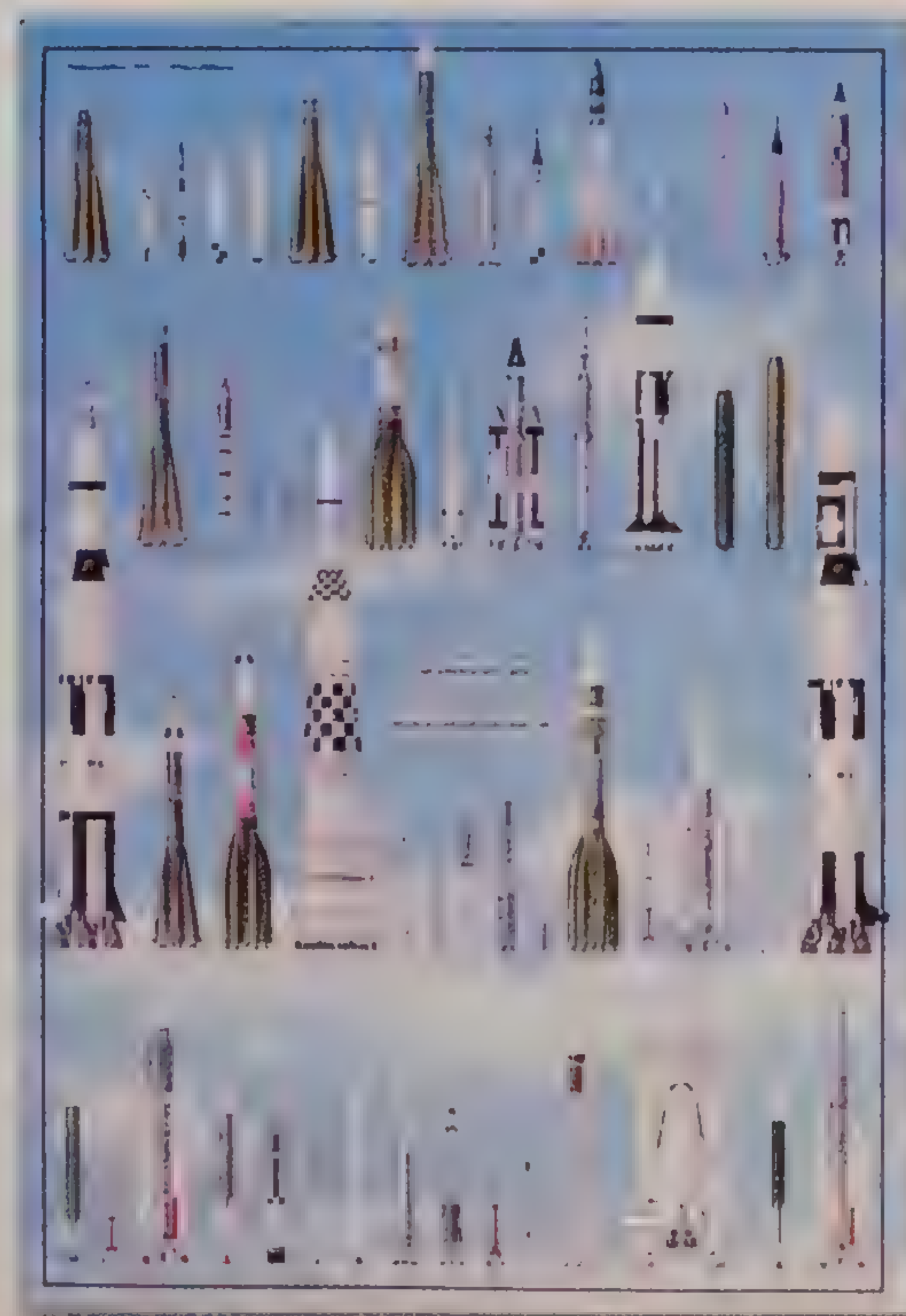
STRAW ROCKET CLASS PACK

For a fun and easy activity to illustrate oodles of scientific principles, look no further than this introductory rocket project. The *Straw Rocket Class Pack* will help teach projectile motion, center of gravity, initial velocity, introductory aerodynamics, and more. Aimed at fifth to ninth graders, this activity is a great way to teach students the principles of rocketry before going on to engine- or hydrogen-powered rockets.

This pack includes enough *Precision Straws*, clay, and fin material for 25 students to make four rockets each, which enables them to experiment with different weights, straw lengths, and fin designs.

Pack includes student instructions. Launcher sold separately.

Z729582—\$19.95



SPACE ROCKETS POSTER

Size: 27" x 38-1/2".

Z752715—\$6.75

Water Rockets



PITSCO DR. ZOON STRATOBBLASTER VIDEO

Dr. Zoon launches into new worlds, using the Pitsco Stratoblaster as his vehicle! Join Dr. Zoon as he demonstrates how to construct a *Stratoblaster* bottle rocket and then launches it using the Pitsco *AquaPort*! Use this video as a prequel to students doing the bottle-rocket activity. Let them see the processes they will be using during the construction of their *Stratoblasters*. Along with construction steps and tips, Dr. Zoon adds his own colorful, scientific explanations of the concepts behind bottle rockets and their flight. Key concepts include drag, ballast, and action-reaction. Closed-captioned. Time: 22 minutes.

Level: Middle School

Z757051 VHS—\$24.95

Z759667 DVD—\$24.95



Save \$36

GS
GETTING STARTED

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PITSCO WATER ROCKETS – GETTING STARTED PACKAGE

This Getting Started package includes everything you need to get your class “out of this world” through bottle rockets: materials for 25 student rockets, two demonstration rockets, launch equipment, *Bottle Rockets* book, and the *Dr. Zoon Stratoblaster Video*.

The *Water Rockets – GS Package* includes the following products that can also be ordered individually:

- Z720759 R2K Classroom Pack*\$65
- Z757051 Dr. Zoon Stratoblaster Video\$24.95
- Z755746 Stratoblaster Kit\$5.95
- Z723039 Stalwart Bottle Rocket\$12
- Z755499 Pitsco AquaPort Launcher\$139
- Z759323 Deluxe Port Pump II\$69.95
- Z757057 Pitsco Bottle Rockets Book\$4.95

Z723611 *Water Rockets – GS Package*—\$285

A \$321.80 value!

*Students provide a 20-ounce, 1-liter, or 2-liter bottle.

WATER ROCKETS

GETTING STARTED TEACHER'S GUIDE

Using the *R2K Bottle Rocket Kit*, this guide moves beyond simply constructing and launching rockets to helping your students learn about apogees, forces, estimation, basic trigonometry, Newton's laws of motion, and more.

The *Water Rockets GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 144 pages.

Level: Middle School-High School

Z759462—\$24.95

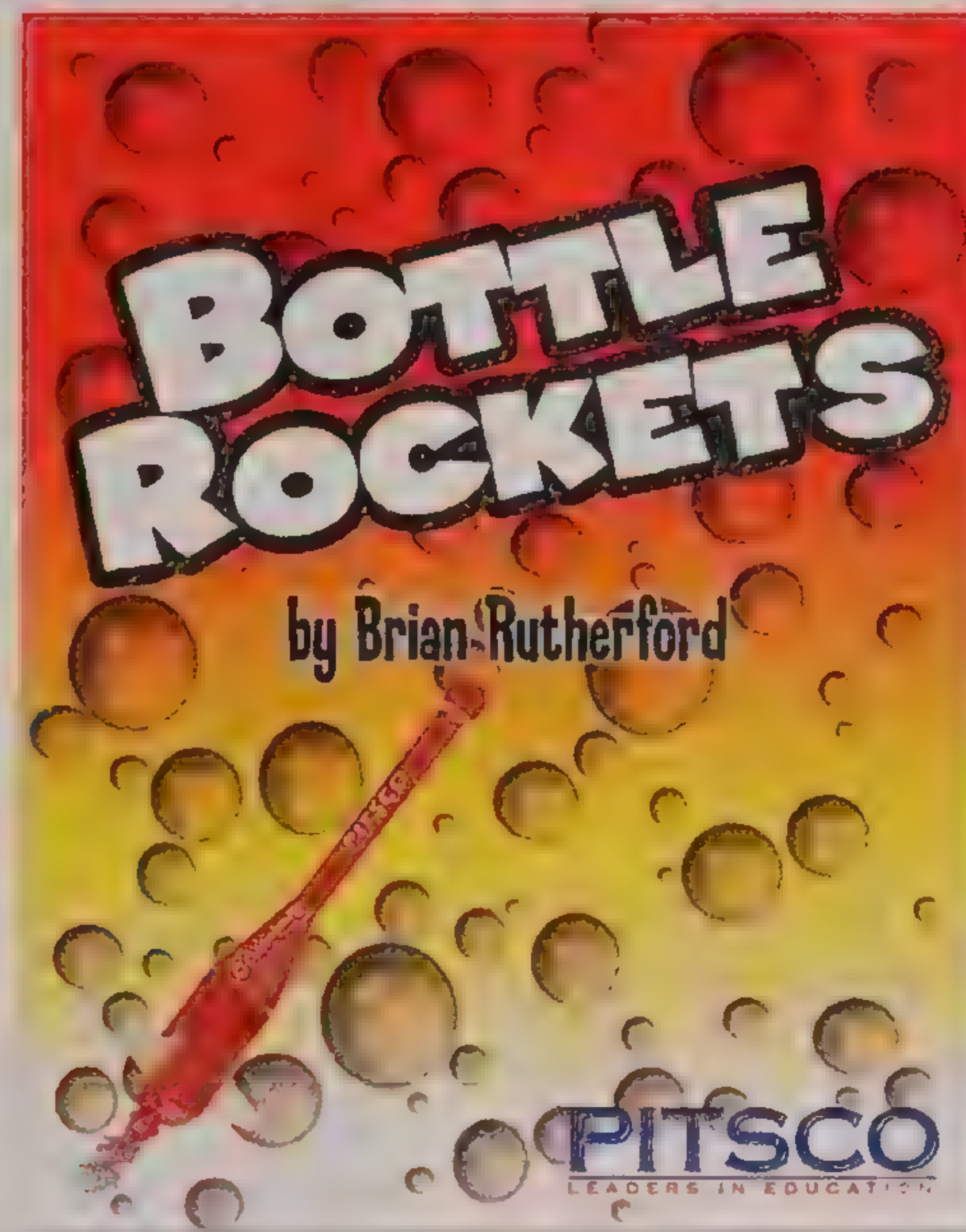


PITS CO BOTTLE ROCKET SMORGASBORD

The *Bottle Rocket Smorgasbord* is a great starter pack for advanced bottle rocketeers! Students can supply their own 20-ounce, 1-liter, or 2-liter bottles (and a little ingenuity) and use them to construct their own high-performance bottle rockets. Enough to build 25 rockets.

The *Smorgasbord* contains a veritable cornucopia of materials – transition and nose cone templates, Ping-Pong balls, three types of fin materials, body tubes, string, sandpaper, parachute reinforcement rings, and more.

Z755749—\$69



PITS CO BOTTLE ROCKETS

Few classroom activities will top this one for high interest! This is a great book to introduce the theory of flight, rocket design, and construction of a bottle rocket. Instructions are provided for the *R2K Bottle Rocket Kit* and for the design of a rocket that will transport a raw egg and return it unbroken. Paperback, 25 pages.

Level: Middle School-High School

Z757057—\$4.95

A. PITS CO AQUAPORT LAUNCHER

Water rocketry is one of the most exciting, hands-on science activities we've seen. Converting empty plastic soda bottles into high-flying rockets provides a great opportunity for students to discover important scientific principles, including Newton's laws, acceleration, thrust, and inertia.

The *AquaPort* is the safest and most consistent way to launch water rockets. It accepts 2-liter, 20-ounce, and many 1-liter bottles. The innovative three-finger latch securely holds the pressurized rocket in place until you pull the launch cord. A safety pin prevents accidental launches, and the *AquaPort*'s stable base and low-effort release add to its safety.

For a super-economical activity, pressurize your rockets with a bicycle pump. With no engines to buy, you can launch your rockets again and again! The *AquaPort* accepts rockets with low-hanging fins and breaks down for complete portability.

Z755499—\$139

B. GAUGE/MANIFOLD ACCESSORY

A must for using compressed air sources with the *AquaPort*. The built-in relief valve limits bottle pressure to a safe 90 psi to prevent bottle ruptures. The precision gauge provides accurate bottle pressure readings. Also features an in-line check valve.

Z719981—\$119

C. DELUXE PORT PUMP II

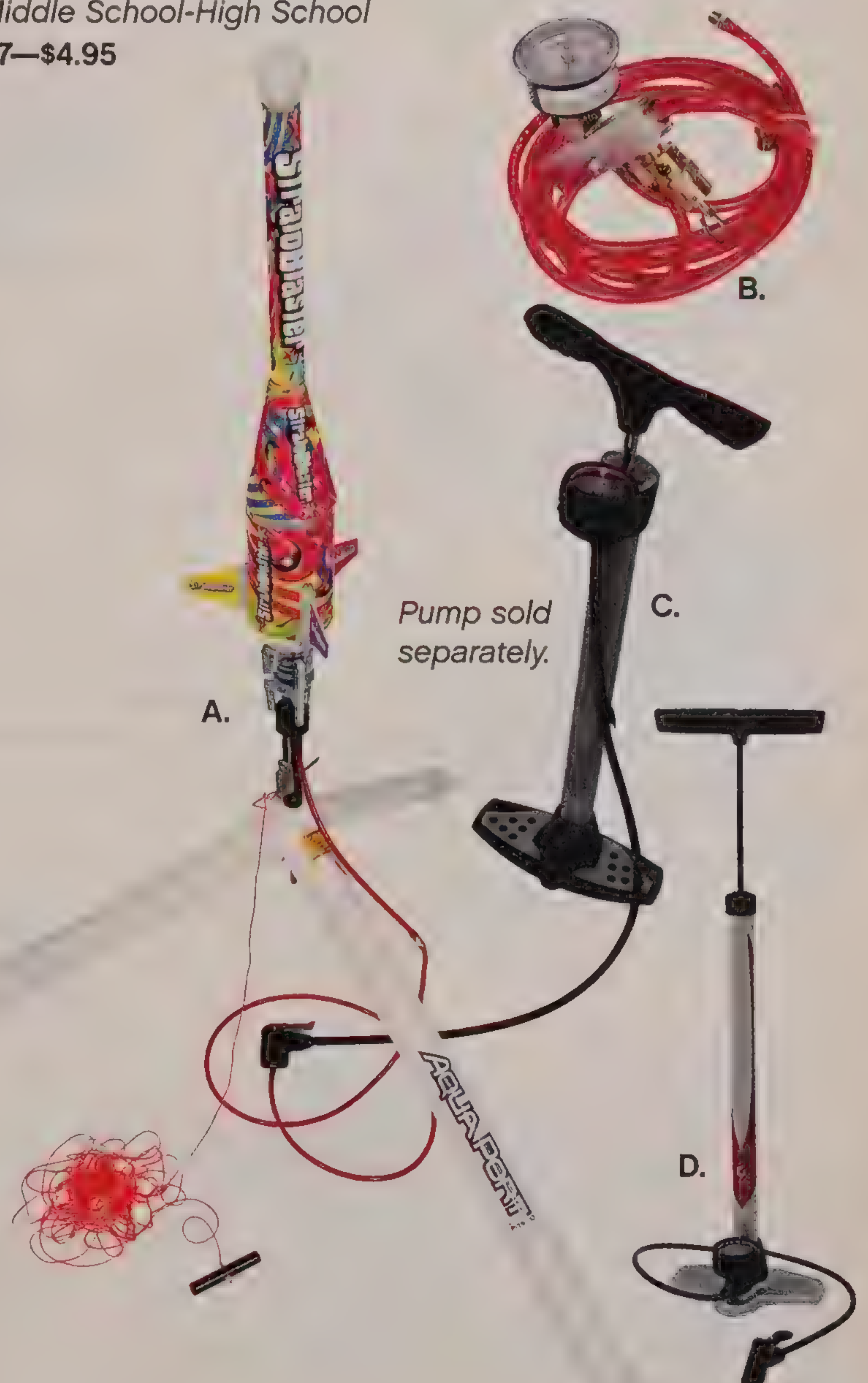
This top-notch bike pump will stand up to years of use. It features all-metal construction and a heavy-duty rod that resists bending. Also features a top-mounted pressure gauge, a locking hose end, and a contoured, rubberized handle.

Z759323—\$69.95

D. ECONOMY TIRE PUMP

This is a sturdy but economical tire pump. Includes pressure gauge.

Z757190—\$33





KESTREL POCKET WIND METER

Get accurate, fast, and easy wind speed measurements anywhere, anytime. The *Pocket Wind Meter* features a large LCD window that is easily read and offers three modes: wind speed, average wind speed, and maximum wind speed. An ultralight anodized aluminum impeller yields high accuracy (within three percent) and a low start-up speed. The rugged unit is waterproof and floats. Includes a lanyard and a hard case that easily snaps on and off. Battery included!

Z754910—\$109



COOL-MELT GLUE GUN

This gun uses glue that melts at a lower temperature than glue in ordinary glue guns. Due to the lower temps, it is safer for young hands and will not melt through plastic bottles and many plastic parts. Uses oval-shaped glue slugs that cannot be confused with hot-melt slugs.

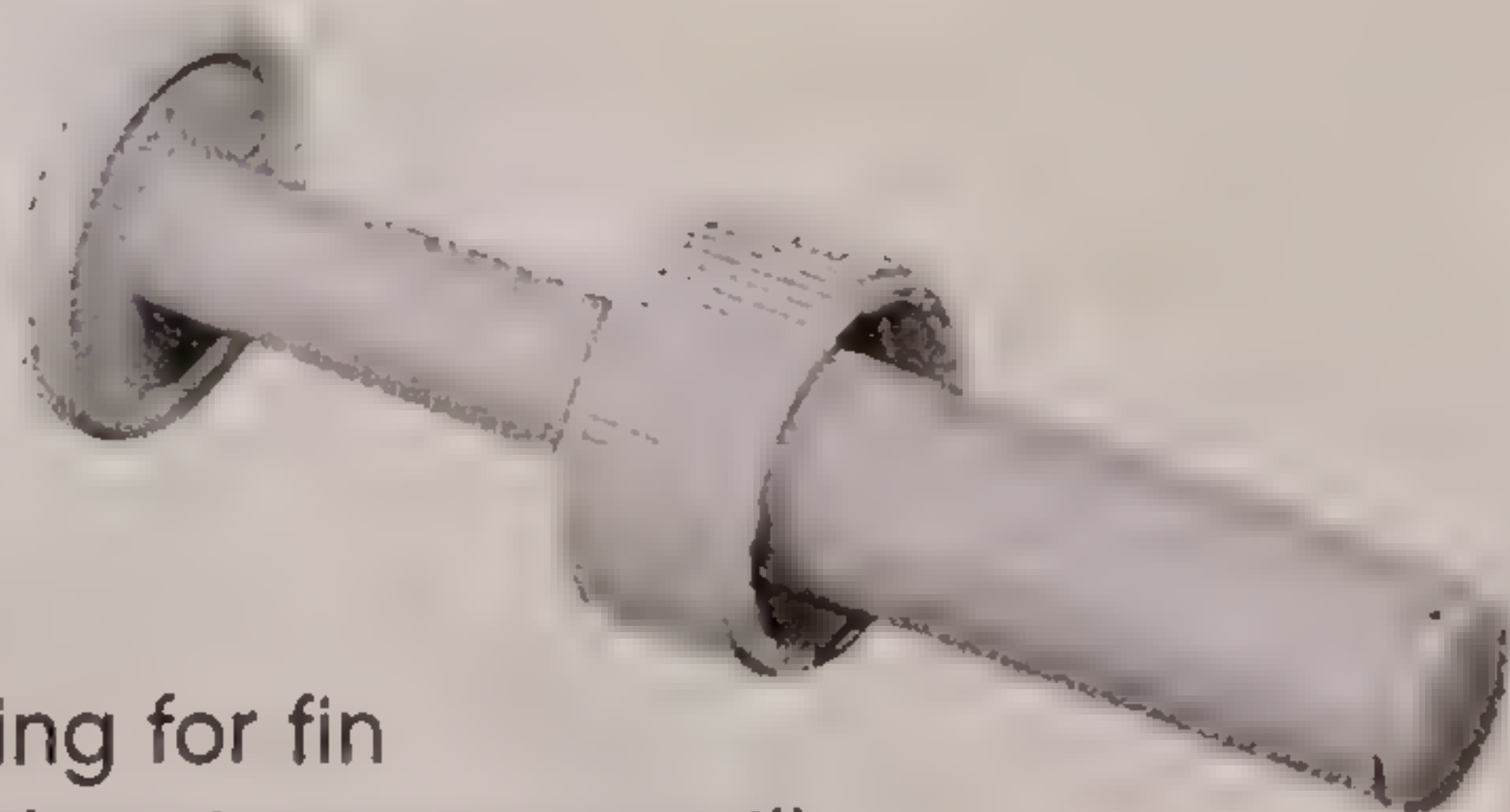
Z752064—\$15.95

Z752061 Oval Glue Slugs (pkg of 30)—\$3.50

THE PUMPER

This device was created to keep your soda fizzy, but it's also extremely handy when building bottle rockets. Pump the bottle before marking for fin placement or attaching fins. The air pressure will keep the bottle rigid, making the task much easier.

Z751995—\$3.25



PITSCO STRATOBMASTER BOTTLE ROCKET KIT

This fantastic kit has all the materials students need to build a high-flying bottle rocket! It's a great way to introduce them to building bottle rockets, giving them a measure of initial success with a proven design.

The innovative design features a 20-ounce plastic soft drink bottle that functions as a propellant tank and a Ping-Pong ball that works as a nose cone and recovery system.

Z755746 (no CO₂ cartridge)—\$5.95

10 or more—\$5.35 each

100 or more—\$5.05 each



PITSCO R2K BOTTLE ROCKET KIT

R2K (Rocket 2000) for the new millennium! With the *R2K Bottle Rocket Kit*, you supply the bottle (20-ounce, 1-liter, or 2-liter) and a cool-melt glue gun, and we supply everything else your students need to construct a bottle rocket: body tube, transition cones for 20-ounce and 2-liter bottles, fin material, nose cone, and even sandpaper to roughen the plastic before cool-melt gluing the fins on the rocket. After completion, use Pitsco's *AquaPort* launch system to launch the rockets to 200 feet or more!

Z720758—\$3.25

10 or more—\$2.95 each

100 or more—\$2.65 each



PITSCO R2K CLASS PACK

(for 25 students)

Bottle rockets for the whole class!

The *R2K Classroom Pack* contains materials to make 25 *R2K* bottle rockets. Have students recycle 20-ounce or 2-liter bottles from home and have cool-melt glue guns available for assembly. Bulk packed to save you money.

Z720759 (pkg for 25)—\$65

10 or more pkgs—\$58.50 each pkg



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GS
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PITSCO MODEL AIRPLANES – GETTING STARTED PACKAGE

Introduce aviation with rubber-powered paper planes and watch class interest soar! This Getting Started package includes materials for 35 students to build and fly their own *Delta Dart*, a sampler set of six additional model airplanes, a teacher's guide, and the *Dr. Zoon Delta Dart Video*.

The *Model Airplanes – GS Package* includes the following products that can also be ordered individually:

- Z750187 Delta Dart Pack\$53
- Z757861 Dr. Zoon Delta Dart Video.....\$24.95
- Z757439 Teaching with Model Airplanes.....\$2.95
- Z757449 Model Airplane Sample Set.....\$43
- Z756215 Insta-Cure+ Glue (5 one-ounce bottles included in the GS package) each bottle.....\$4.95
- Z757441 Indoor Rubber Band Motor Winder.....\$32

Z723658 Model Airplanes – GS Package—\$160
A \$180.65 value!

MODEL AIRPLANES

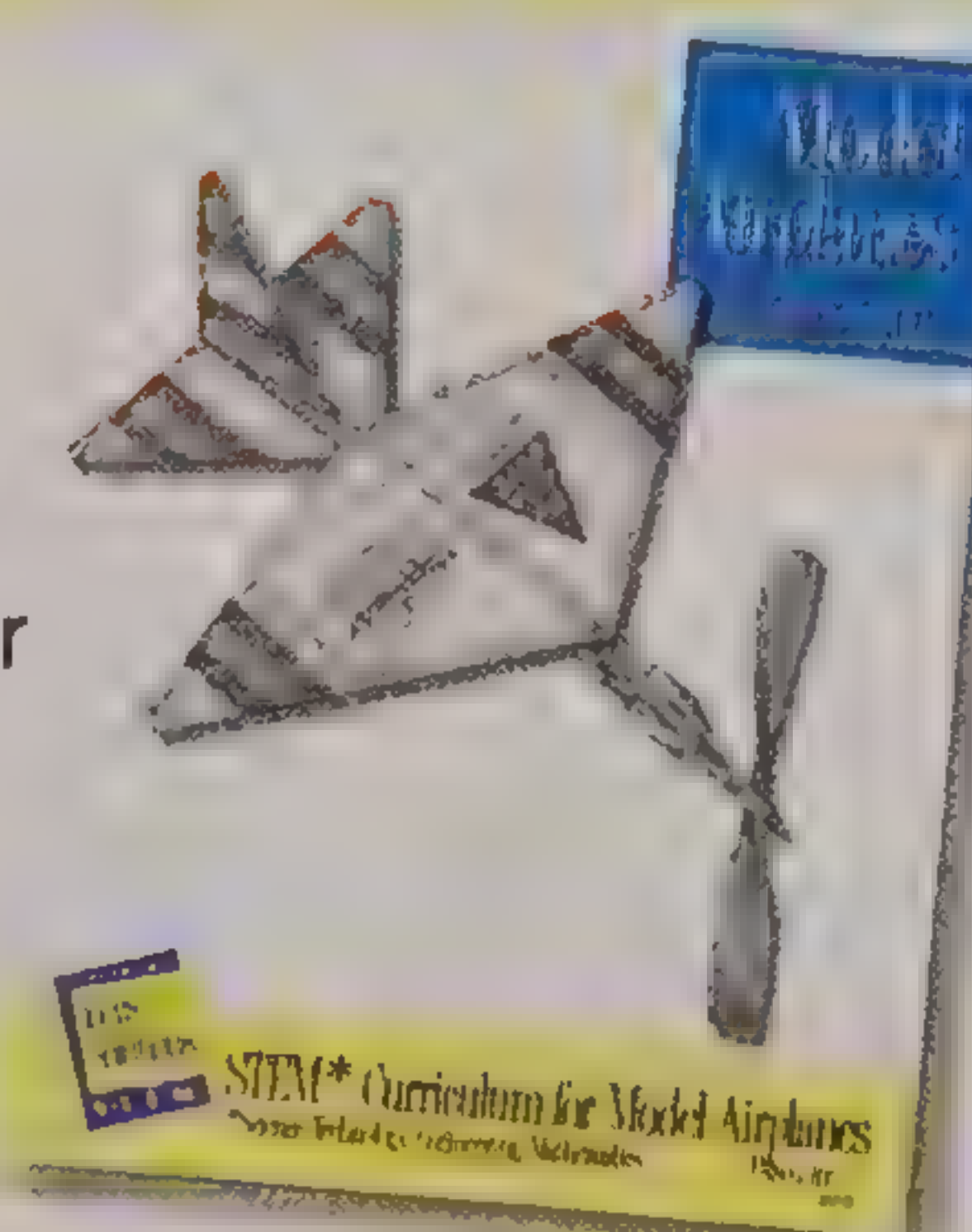
GETTING STARTED TEACHER'S GUIDE

Need an angle of attack to teach students science and technology concepts? Just don the aviator glasses and have them build the *Delta Dart* model airplanes powered by rubber bands. Then, this guide's activities will help them understand forms of energy, aerodynamic forces, initial velocity, how to design to achieve specific kinds of performance, and more.

The *Model Airplanes GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 109 pages.

Level: Middle School-High School

Z759729—\$24.95



PITSCO DR. ZOON DELTA DART VIDEO

Dr. Zoon is all wound up about flying – the *Delta Dart* rubber band-powered airplane, that is!

Join Dr. Zoon as he builds a *Delta Dart* model plane, talks about some of the aeronautic principles involved, and gives some pointers on the construction process. This is one high-flying video! Closed-captioned. Time: 21 minutes.

Level: Middle School-High School

Z757861 VHS—\$24.95

Z759750 DVD—\$24.95

PITSCO MODEL RUBBER BAND POWERED AIRPLANES

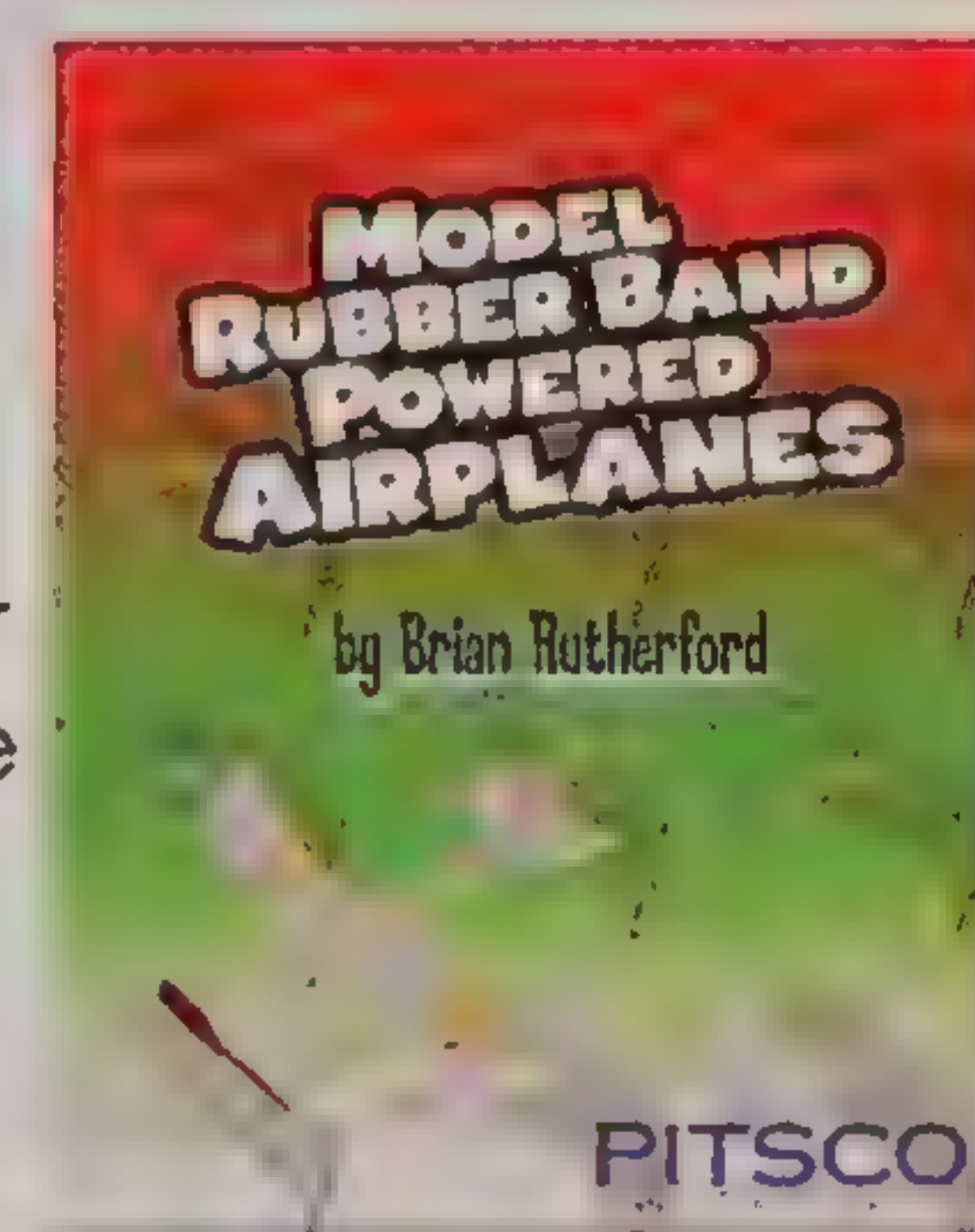
Brian Rutherford

After students master gliders, they should tackle rubber band-powered flight. Easy-to-follow instructions for making and trimming the *Delta Dart* combined with extensive illustrations and photographs make it easy for students to be successful. Paperback, 30 pages.

Level: Intermediate-High School

Z758184—\$2.50

10 or more—\$2.25 each



DELTA DART

Use this model for Grades 4 and up. Pylon-mounted, paper-covered wings give stable flight. Indoor or outdoor use. Rubber band powered. Wingspan of 11-1/2".

Z757453—\$5.50

Z750187 (pkg of 35)—\$53

RUBBER BAND WINDER

A great little tool that saves time when winding propellers of rubber band-powered airplanes. Five to one winding ratio. Winds clockwise only.

Z754595—\$9



Hot-Air Balloons



PITSCO DR. ZOON HOT-AIR BALLOONS VIDEO

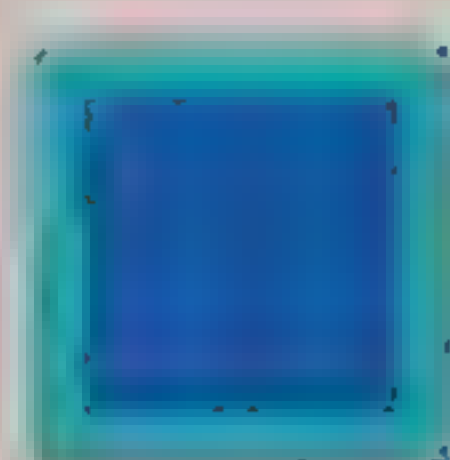
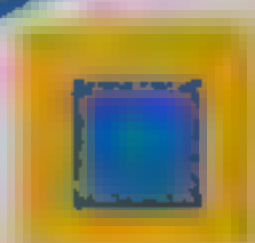
Is Dr. Zoon full of hot air? We're not sure about Dr. Zoon, but we know his balloons are!

In this colorful video, Dr. Zoon demonstrates how to construct a hot-air balloon using balloon construction paper, glue sticks, and pipe cleaners. Dr. Zoon provides construction steps and tips and also provides some scientific background so students will understand how hot-air balloons fly! Key concepts include buoyancy, density, and displacement. Closed-captioned. Time: 26 minutes.

Level: Intermediate-Middle School

Z759041 VHS—\$24.95

Z759640 DVD—\$24.95

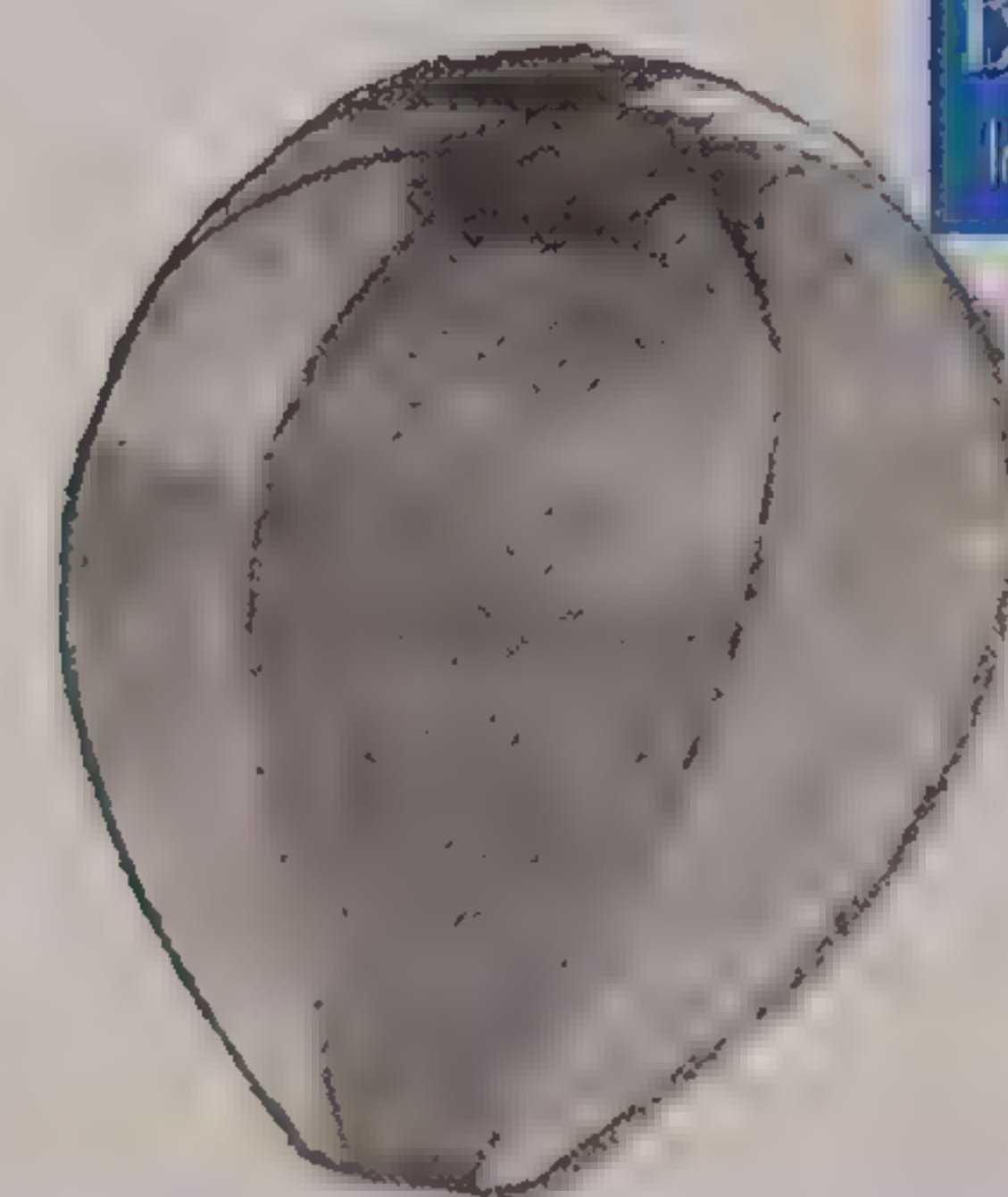


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Hot-Air
Balloons
Teacher's Guide

Hot-Air
Balloons
STEM* Curriculum for Hot-Air Balloons
Science, Technology, Engineering, Mathematics
©2014

HOT-AIR BALLOONS

GETTING STARTED TEACHER'S GUIDE

Give classroom curriculum a lift with the *Hot-Air Balloons GS Teacher's Guide*. Students learn to calculate surface area and volume; to analyze flights; and to discover how lift, drag, buoyancy, and temperature affect hot-air balloon flight.

The *Hot-Air Balloons GS Teacher's Guide* contains ITEA, NCTM, and NSTA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 94 pages.

Level: Middle School-High School

Z759614—\$24.95

PITSCO HOT-AIR BALLOONS – GETTING STARTED PACKAGE

Give your students a lift; get them excited with hot-air balloons! Everything you need to get your class started in hot-air balloons including materials for 25 students to build their very own hot-air balloons, launching equipment, and the *Dr. Zoon Hot-Air Balloons Video*.

The *Hot-Air Balloons – GS Package* includes the following products that can also be ordered individually:

- Z729610 Zoon Balloon Class Pack II\$99
- Z759041 Dr. Zoon Hot-Air Balloons Video\$24.95
- Z727300 Inflation Station Launcher\$345

Z723612 Hot-Air Balloons – GS Package—\$430

A \$468.95 value!

Inflation Station by PITSCO

PITSCO THE INFLATION STATION – HOT-AIR BALLOON LAUNCHER

Building a hot-air balloon is a great project for students, but you need a launcher to really get the most out of the activity. Our hot-air balloon launcher was designed for the safest and easiest launch possible. The launcher features a cool-to-the-touch chimney and a grill to block access to the flame. The inflation guides make it a breeze to hold the balloon in place while filling. These guides hold the balloon open, resulting in a faster inflation time – plus they keep hands from drifting over the blast of hot air.

The Inflation Station launches balloons ranging in size from two to nine feet. Also includes propane cylinder base, torch kit, igniter, *Adventures in Lighter-than-Air Flight* book, and instructions. Requires a standard propane canister, sold separately. For outdoor use only.

Z727300—\$345

PROPANE CANISTER FOR BALLOON LAUNCHER Z752100 (approximately 8" tall, 16.4 ounces)—\$4.95

This item is deemed hazardous by the Department of Transportation; therefore, a flat fee of \$30 will be added for ground delivery. Shipping by air is prohibited. The hazardous fee will be in addition to the regular shipping charges.

PITSCO INDOOR BALLOON TESTER

Before the big launch outside, wouldn't it be nice to test student balloons in the confines of your school?

This innovative launcher will test-fly hot-air balloons safely and effectively. Because the unit runs on electricity, you don't have to worry about fumes from

the unit. You will, however, need to have a heavy extension cord available (12 gauge recommended) for optimum performance.

Note: This unit is intended for indoor use only. For outdoor launches, purchase the Pitsco Inflation Station.

Z713263—\$89



PITSCO ZOON BALLOON CLASS PACK II

The same materials as in the *Dr. Zoon Hot-Air Balloon Kit*, just more of them – enough for 25 students to make their own Zoon hot-air balloon. The class pack includes:

- Assorted color tissue paper
- 25 glue sticks
- 100 paper clips
- 25 *Zoon Balloon* instructions
- *Zoon Balloon* template

Z729610—\$99

Z729609 Dr. Zoon Hot-Air Balloon Kit—\$6.95

PITSCO ADVENTURES IN LIGHTER-THAN-AIR FLIGHT

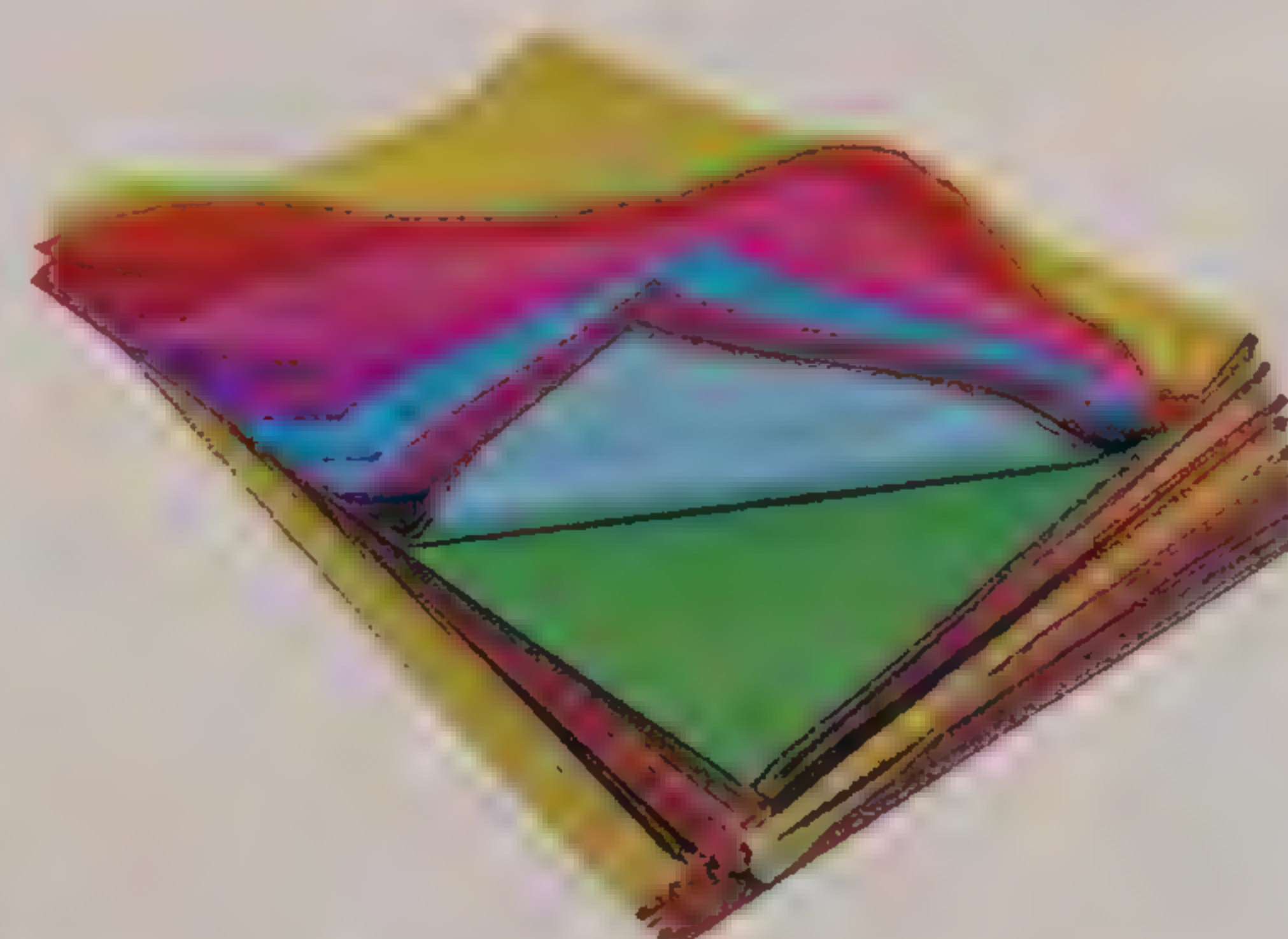
A colorful and carefully researched journey through the history and science of lighter-than-air flight.

Students learn about Archimedes' principle, the density and lift of gases, atmospheric pressure, gravity, why air is called a fluid, how airships and balloons fly, and more. Includes science activities, classroom discussion questions, and instructions for building six-foot and nine-foot tissue paper hot-air balloons. Paperback, 15 pages.

Level: Middle School-High School

Z757744—\$4.95

10 or more—\$4.45 each



BALLOON CONSTRUCTION PAPER

20" x 30" sheets.

Z751934 Assorted Colors (pkg of 100)—\$12.95

Z753749 Assorted Colors (pkg of 480)—\$59

GLUE STIC

Z751913—\$1

10 or more—\$.90 each

100 or more—\$.85 each





PITSCO DR. ZOON KAZOON KITE VIDEO

Constructing a kite can be an uplifting experience – especially when Dr. Zoon shows you how to do it.

Watch as Dr. Zoon builds a tetrahedron kite by using items contained in the *Dr. Zoon KaZoon Kite Kit*, sold separately. By following Dr. Zoon's step-by-step instructions, students learn how to construct their kites for maximum success aloft and are exposed to math and science principles in the process. Students can use materials contained in the *Dr. Zoon KaZoon Kite Kit* or the *Kite Explore-A-Pak*. Closed-captioned. Time: 38 minutes.

Level: Intermediate-High School

Z756860 VHS—\$24.95

Z759747 DVD—\$24.95

Save \$17



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PITSCO KAZOON KITES – GETTING STARTED PACKAGE

“Project on a string” usually indicates an inexpensive activity, and this is no exception. This Getting Started package includes materials needed for 30 kites, the *Dr. Zoon KaZoon Kite Video*, and the *Building Kites* book.

The *KaZoon Kites – GS Package* includes the following products that can also be ordered individually:

- Z723626 KaZoon Kite Class Pack..... \$89
- Z756860 Dr. Zoon KaZoon Kite Video..... \$24.95
- Z753173 Building Kites Book..... \$29

Z723613 KaZoon Kites – GS Package—\$125

A \$142.95 value!



KAZOON KITES GETTING STARTED TEACHER'S GUIDE

You don't have to play with lightning to learn from kites! This guide shows how to construct a tetrahedron kite and use it to demonstrate many important principles: lift, area and volume, density, forming and testing a hypothesis, tetrahedral and polyhedral design, and more.

The *KaZoon Kites GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 98 pages.

Level: Middle School-High School

Z759461—\$24.95

EXCLUSIVE

PITSCO DR. ZOON KAZOON KITE KIT

Go fly a kite and discover the principles of flying in the same way the pioneers of flight did. You will learn about flight while assembling a flying machine that soars so easily you may have trouble getting it down! This kit comes complete with step-by-step instructions and everything else you need except wind!

Z756772—\$6.95



KITES FOR EVERYONE

Great illustrations and activities make this book one every kite lover will have to have! An expert on kites in the classroom and on fabric kite construction, Margaret Greger has combined the information from her three previous books on kites into this one publication. Paperback, 136 pages.

Level: Intermediate-Middle School

Z753187—\$17



PITSCO KAZOON KITE CLASS PACK

The same great materials as in the *Dr. Zoon KaZoon Kite Kit*, just more of them – enough for 30 kites.

Z723626—\$89

KITE TWINE

Polyester/cotton, roll of 300 feet.

Z751912—\$2



MATH PROJECTS SERIES: BUILDING KITES

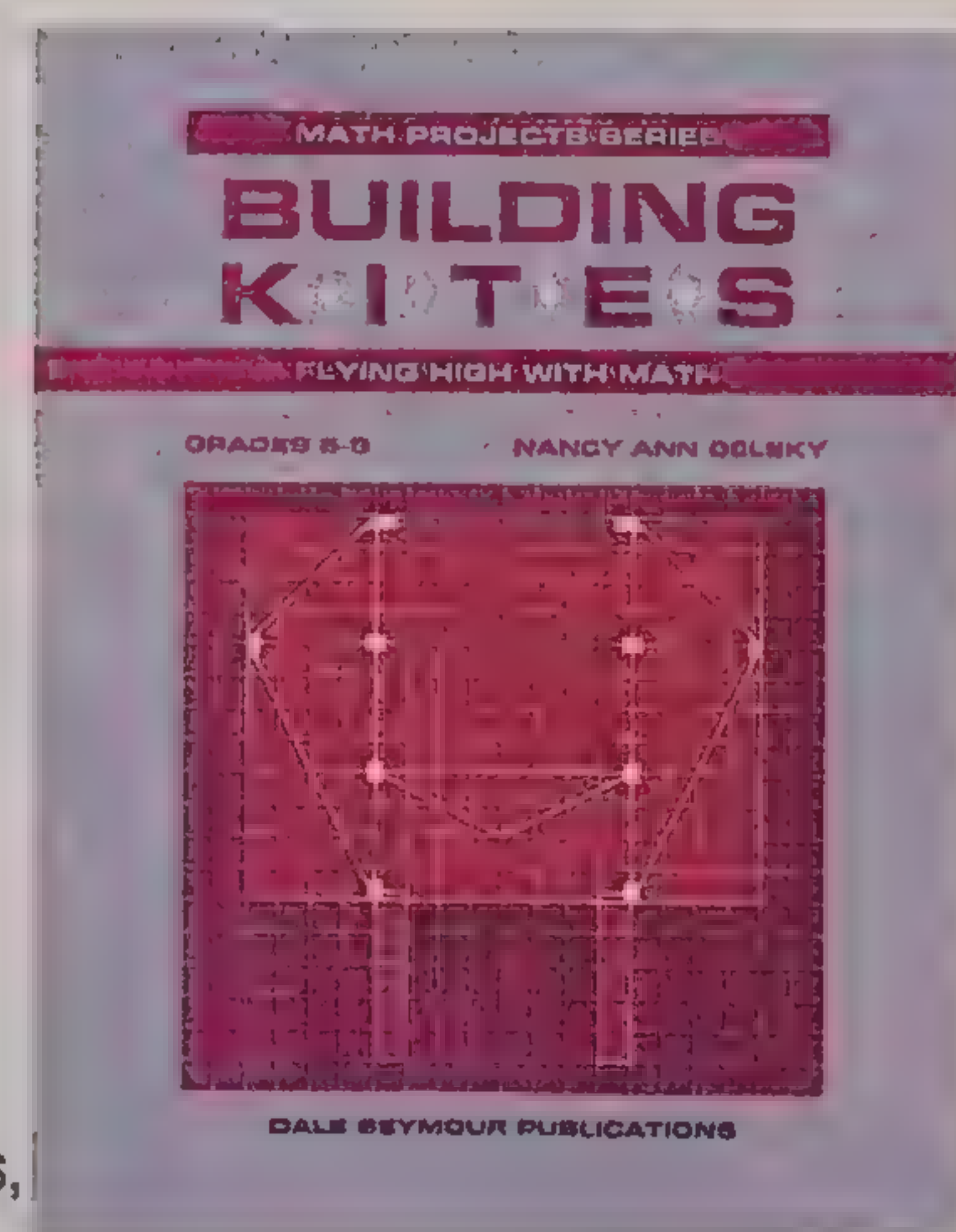
This great activity book integrates mathematics into kite building. These fun, challenging hands-on kite projects provide opportunities for students to:

- Follow and solve problems.
- Express their creativity while planning and building usable models.
- Apply math as they enlarge patterns, determine measurements, and look for relationships.
- Experience the satisfaction of seeing their kites fly and continue to apply math as they estimate the altitude of their kites.

Paperback, 65 pages.

Level: Middle School-Adult

Z753173—\$29



Parachutes

Save \$10.90

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PITSCO PARACHUTES – GETTING STARTED PACKAGE

Build and deploy parachutes with a variety of payloads and watch the excitement. This Getting Started package includes materials for 25 student parachutes and the *Dr. Zoon Parachutes Video*.

The *Parachutes – GS Package* includes the following products that can also be ordered individually:

- Z723735 ChutePak II\$45
- Z757227 Dr. Zoon Parachutes Video\$24.95
- Z732863 Rip Cord Parachute Drop.....\$29.95

Z723659 Parachutes – GS Package—\$89

A \$99.90 value!

EXCLUSIVE

RIP CORD PARACHUTE DROP



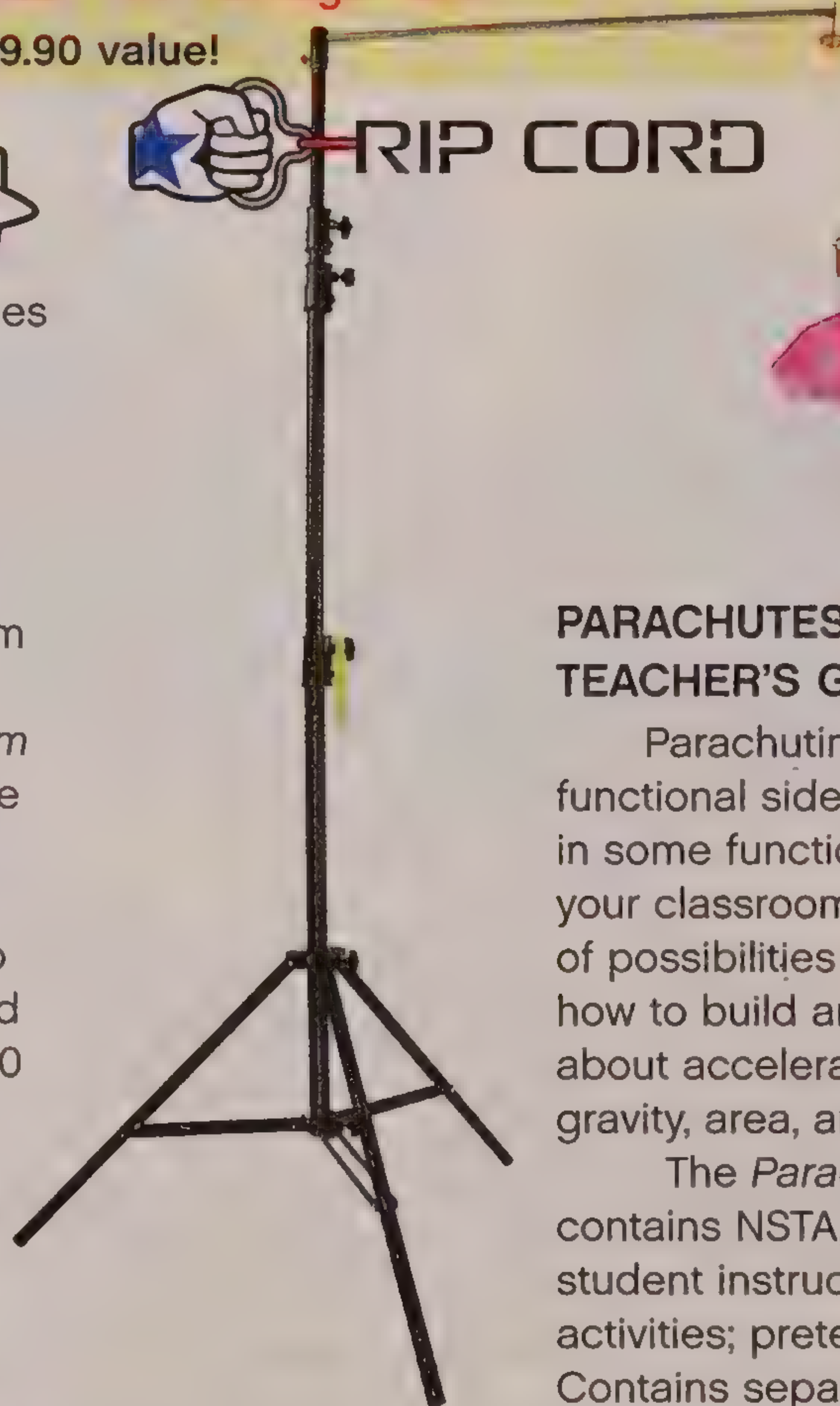
Get the drop on parachute activities – the new *Rip Cord* makes it easy to drop student-built parachutes without touching a rickety ladder!

Simply build the device following assembly instructions and mount the *Rip Cord* from a gym ceiling, classroom suspended ceiling, the rim of a basketball hoop, or from a 13' *Aluminum Stand*, sold separately. Then, attach the parachute on the chute grip, and pull the string until it reaches the bumper where it is automatically released – no ladder required! Includes the parts and hardware to build the *Rip Cord* and 100 feet of twine.

Z732863—\$29.95

Z732894 Aluminum Stand, 13'—\$145

RIP CORD



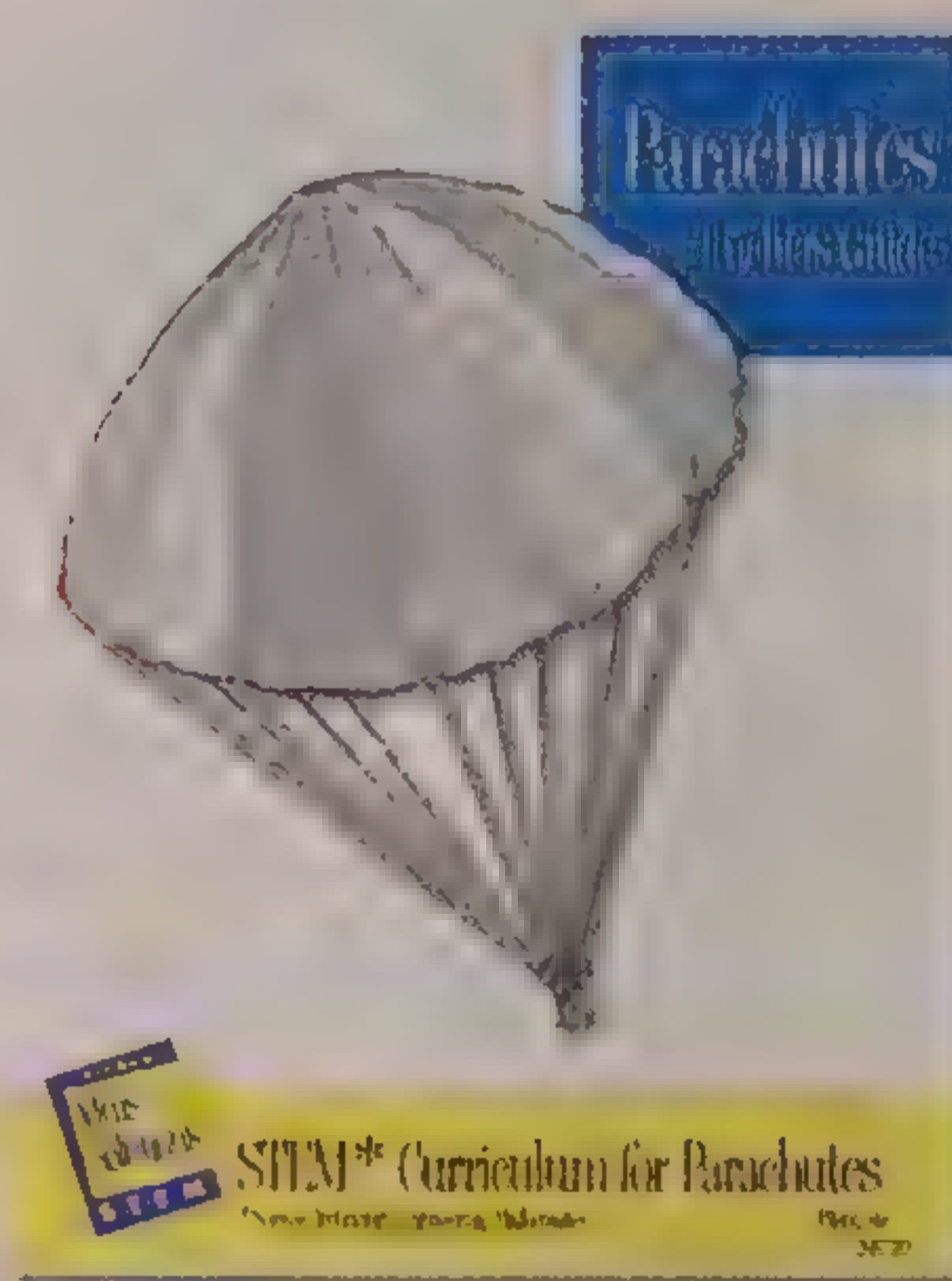
PARACHUTES GETTING STARTED TEACHER'S GUIDE

Parachuting has both a fun and functional side – let the fun help you drop in some functional science and math into your classroom! This guide pulls the rip cord of possibilities by showing you and students how to build and test parachutes to learn about acceleration, speed, velocity, load, gravity, area, and a bundle of calculations.

The *Parachutes GS Teacher's Guide* contains NSTA, NCTM, and ITEA standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students. Paperback, 116 pages.

Level: Middle School-High School

Z759730—\$24.95



PITSCO DR. ZOON PARACHUTES VIDEO

What is the good doctor up to now? About 20 feet, and testing his latest parachute!

Watch as Dr. Zoon constructs a parachute from tissue paper and tests its performance. Don't worry though. Dr. Zoon is not jumping with the parachute.

Use this or similar designs for parachutes on bottle rockets to help them stay in the air as long as possible! Closed-captioned. Time: 17 minutes.

Level: Middle School-High School

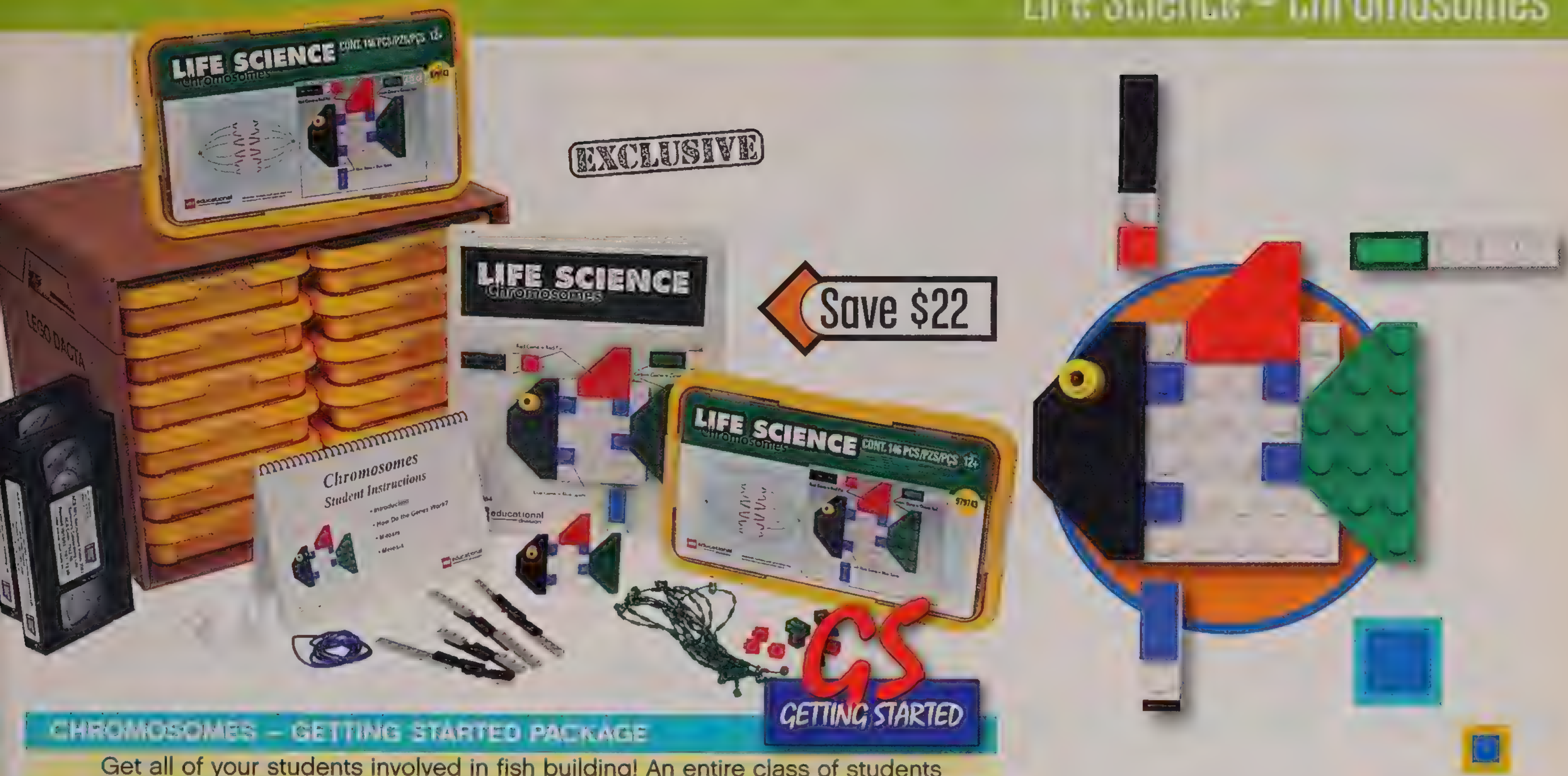
Z757227 VHS—\$24.95



PITSCO CHUTEPAK II

Pitsco's *ChutePak II* contains materials for students to explore the principles governing the design and use of parachutes. Students build a parachute that must safely guide a raw egg payload to Earth. Tissue paper, glue sticks, activity book, and all other necessary materials are included for 25 students. Egg not included.

Z723735—\$45



CHROMOSOMES - GETTING STARTED PACKAGE

Get all of your students involved in fish building! An entire class of students can learn at the same time with this package, which includes the *Chromosomes Teacher Pack* plus 12 additional *Chromosomes Student Sets*. For use by 24 students working in teams of two, this package also includes a handy and durable cardboard storage unit for your *Student Sets* to help keep everything in order.

- Z909743 *Chromosomes Teacher Pack*\$149
- Z979743 *Chromosomes Student Sets* (12 sets included in GS package)
each set.....\$39

Z991067 Chromosomes - GS Package—\$595
A \$617 value!



CHROMOSOMES STUDENT SET

Adding students? Add individual *Chromosomes Sets* to your classroom after you've purchased the *Chromosomes Teacher Pack*! This set includes a student guide with building instructions, unique LEGO® bricks, and a handy, durable storage unit with an inventory graphic. Designed for use by a team of two students.

Level: Intermediate-College

Z979743—\$39

CHROMOSOMES TEACHER PACK

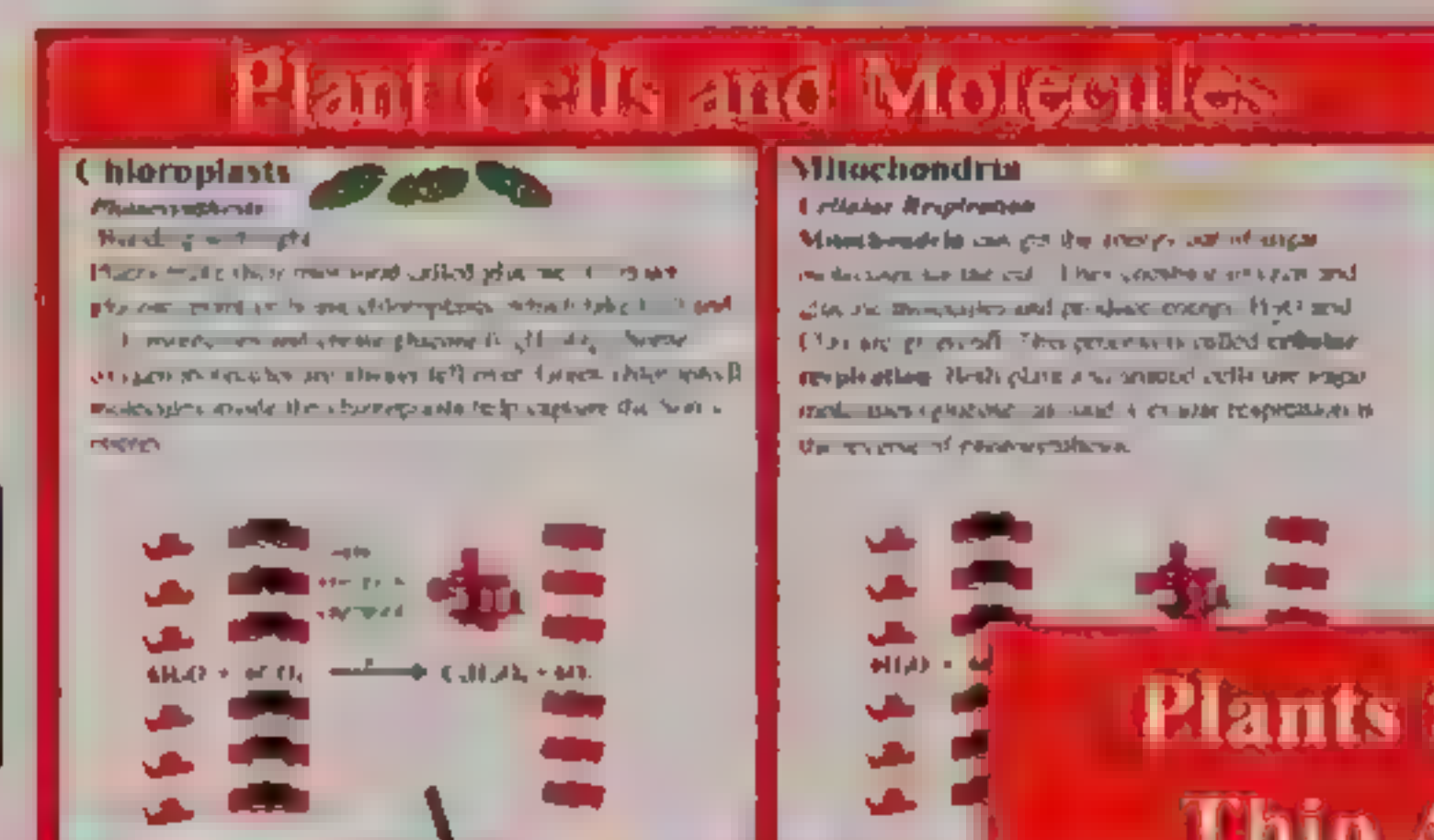
Your students will never be more excited to learn about chromosomes! This activity will liven up any general life science curriculum or biology classroom and will provide years of use. The intricacies of chromosomes are taught in four sessions using a unique LEGO® set, a detailed teacher's guide, and two custom videos, *Mitosis* and *Meiosis*, which the students watch and pause as they complete the activities.

In the *Teacher Pack*, you get all of the instructional materials needed to help your students master the concept of chromosomes by building fish out of LEGO bricks. With the bricks representing genes, your two-student teams determine spot color, fin color, and tail color. We've even included two *Chromosomes Student Sets* for demonstration purposes, so you can show both male and female genes with different fish models.

- Teacher's guide with overheads
- 2 *Chromosomes Student Sets*

Z909743—\$149

Life Science – Photosynthesis



PLANTS POSTERS PACK

Add these two posters to your life science classroom and help your students visualize biology concepts. Intended for use with the LEGO® Education Photosynthesis Set or on their own as a colorful teaching tool. Each poster measures 24" x 36".

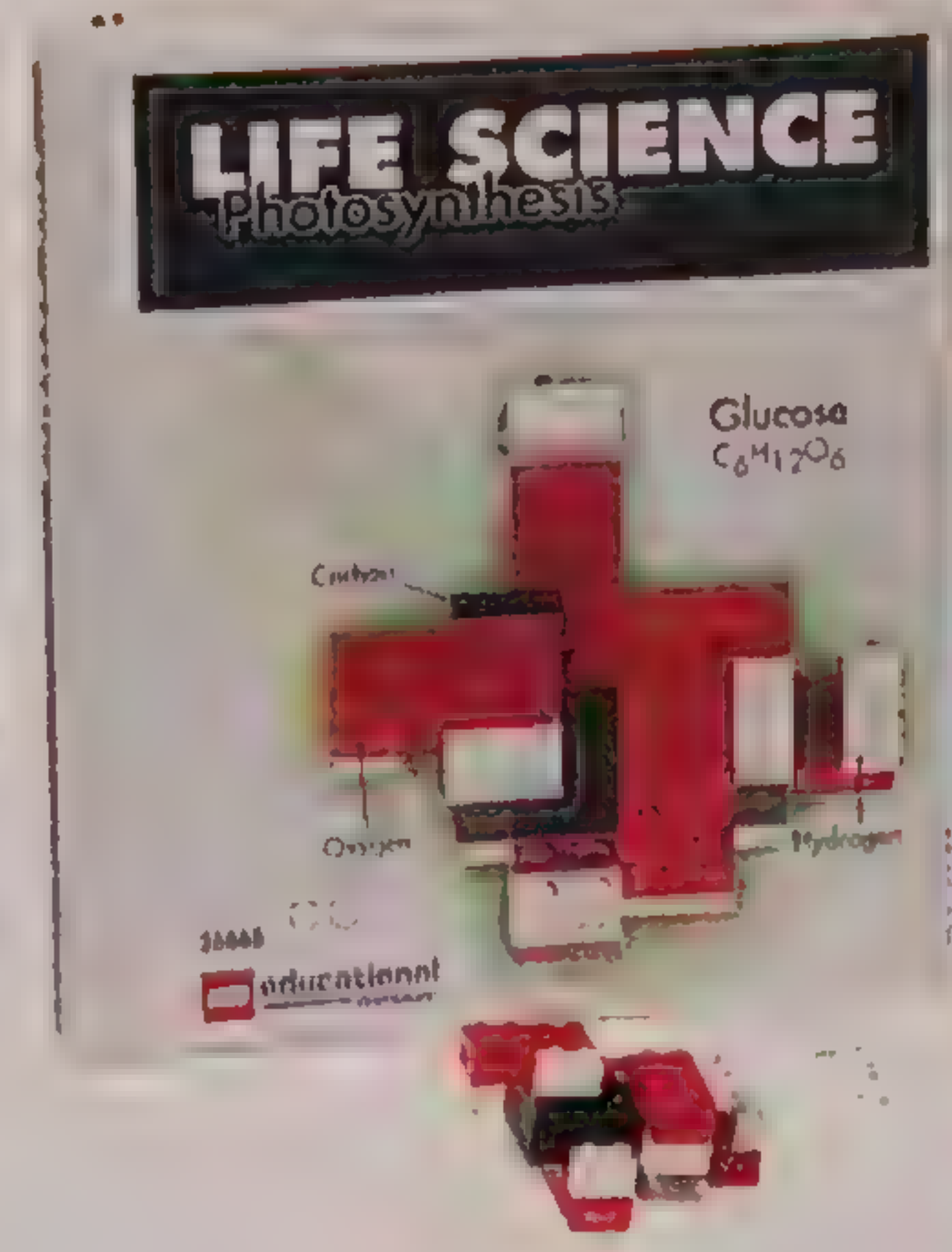
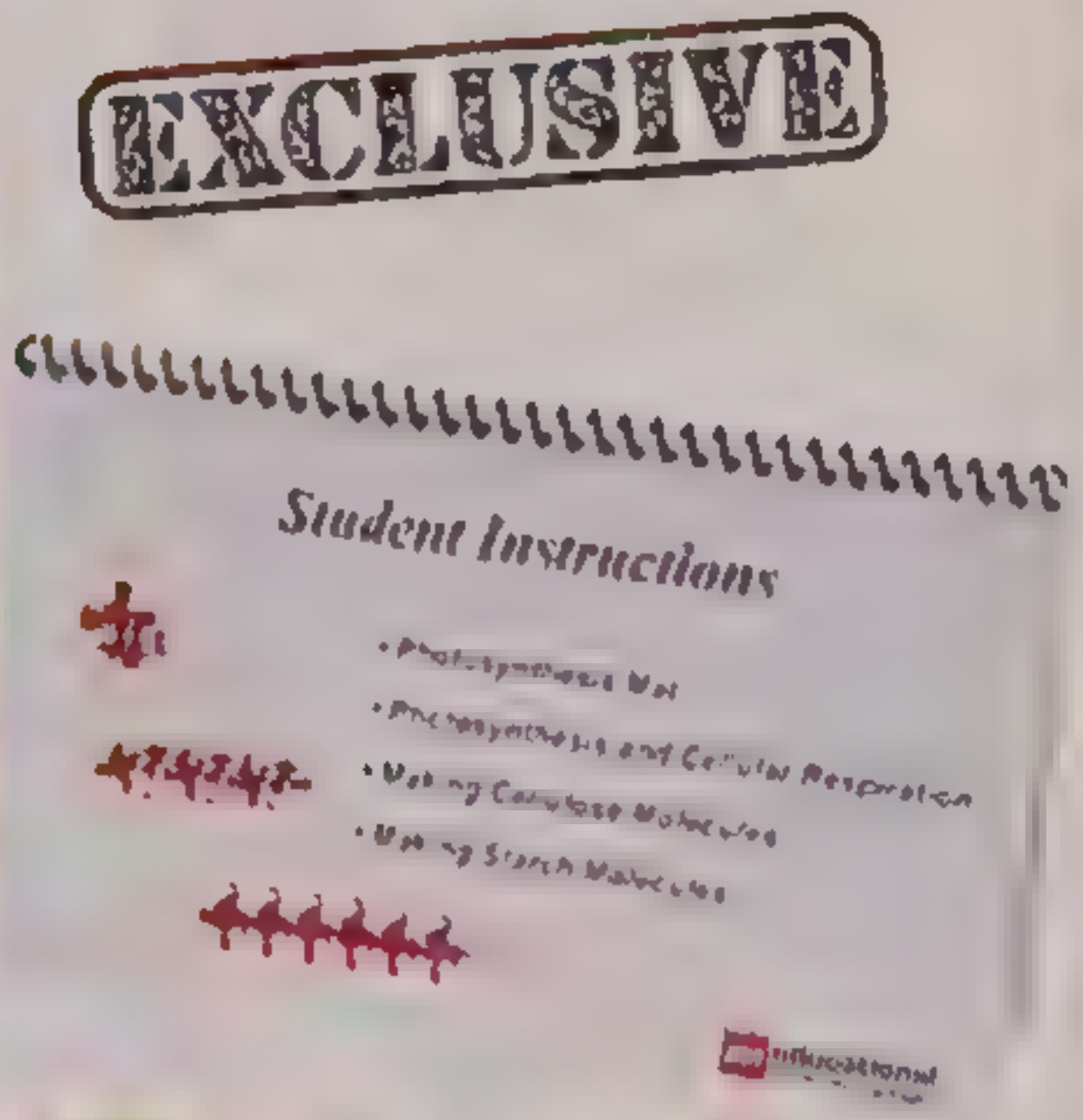
Z991160—\$12

PHOTOSYNTHESIS – GETTING STARTED PACKAGE

Bring your whole classroom together with this package! Designed for a full class of students, this package includes the *Photosynthesis Teacher Pack* plus 12 *Photosynthesis Student Sets*. Included are all instructional materials and sets needed for 24 students working in pairs, plus a sturdy cardboard storage case that holds all 12 of your sets and preserves them for years of use.

- Z909742 Photosynthesis Teacher Pack.....\$89
- Z979742 Photosynthesis Student Sets (12 sets included in GS package) each set.....\$29

Z991065 Photosynthesis – GS Package—\$425
A \$437 value!



PHOTOSYNTHESIS STUDENT SET

If you've already purchased the *Photosynthesis Teacher Pack*, you can now begin adding individual *Photosynthesis Student Sets* to your collection. This set includes a student guide with building instructions, LEGO® bricks, and a sturdy storage unit with an inventory graphic. Designed for use by a team of two students.

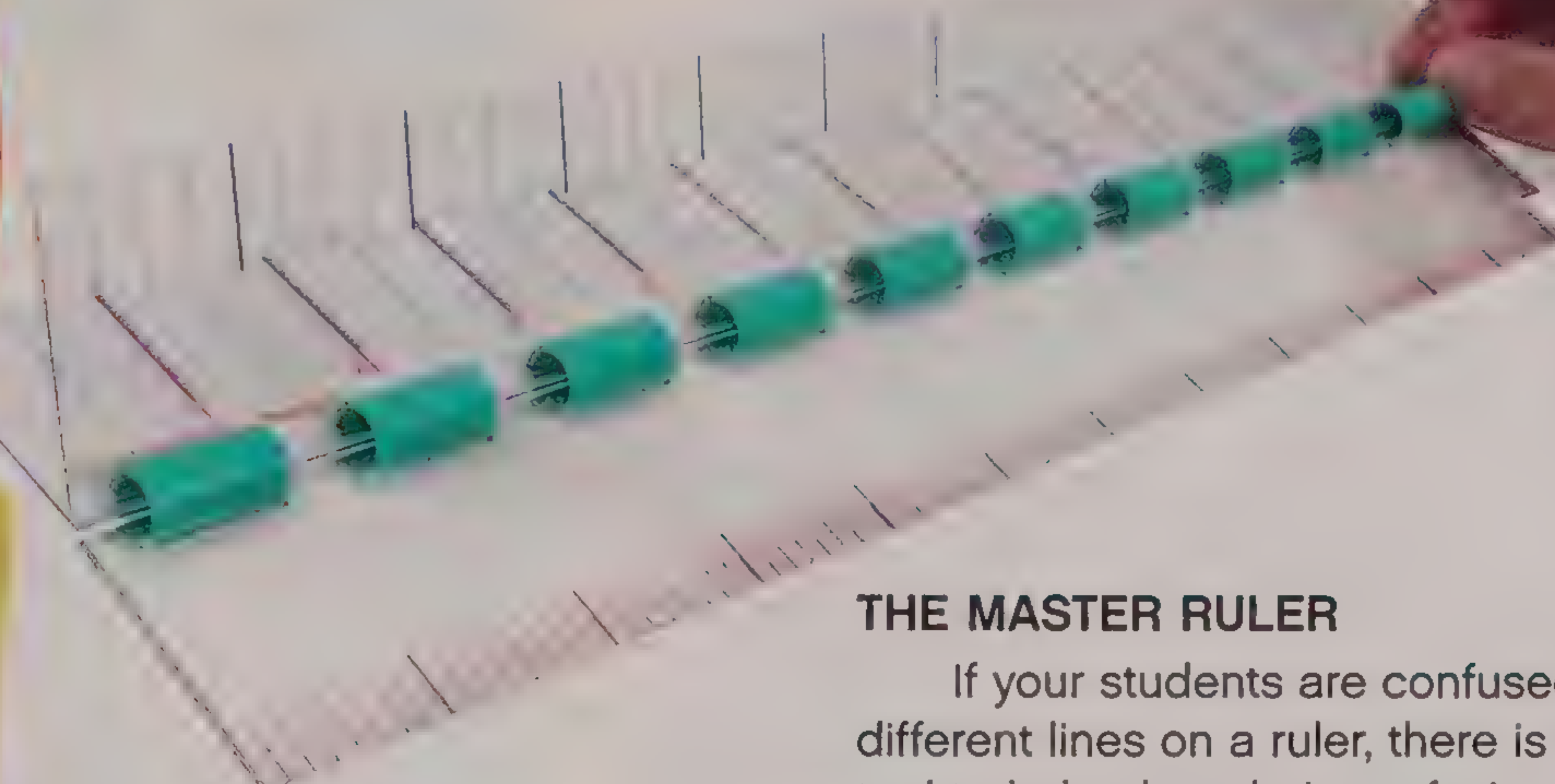
Z979742—\$29

PHOTOSYNTHESIS TEACHER PACK

Use the motivational powers of LEGO® bricks in your life science classroom! This exciting new activity uses a custom LEGO set along with a teacher's guide to help your students master the concept of photosynthesis. Also used are two large posters for your classroom, which the students refer to while completing the four-session activity.

With this *Teacher Pack*, you get all of the instructional materials needed to help your students build molecular models with LEGO bricks, all the while learning how photosynthesis and cellular respiration occur in a plant cell. Included in the *Teacher Pack* are all of the instructional resources needed, including a *Photosynthesis Student Set* for demonstration purposes.

- Detailed teacher's guide with overheads
 - Plants from Thin Air? poster
 - Plant Cells and Molecules poster
 - Photosynthesis Student Set
- Z909742—\$89



Save \$29

THE MASTER RULER

If your students are confused by all the different lines on a ruler, there is finally a simple tool to help clear their confusion. *The Master Ruler* breaks down the fractions of measurement in layers. Students can comprehend the large unit and then flip over another clear layer to see how this unit breaks down into smaller units. Each layer has its own color and index tab so it is easily identified and separated. This tool is great for learning equivalent fractions. The 24-page, reproducible workbook provides fun activity ideas.

The standard ruler features layers for 1", 1/2", 1/4", 1/8", and 1/16". The metric ruler has three layers: decimeter, centimeter, and millimeter. The teacher's edition overlays are all clear. Features:

- Measuring fractions
- Drawing fractional/line lengths
- Estimate fractional measurement

Z759206 Standard Ruler, 12"—\$8.50

Z759208 Standard Teacher Ruler, 12"—\$8.50

Z759210 Standard Classroom Set
(25 student rulers, 1 teacher ruler,
1 workbook)—\$199

Z759207 Metric Ruler, 30 cm—\$8.50*

Z759211 Metric Classroom Set
(25 student rulers, 1 teacher ruler,
1 workbook)—\$199*

**Not intended for use with the LEGO® Fractions Class Pack. Most LEGO elements do not measure evenly using the metric system.*

EXCLUSIVE

MASTER RULER – GETTING STARTED PACKAGE

Everything you need to outfit an entire class with *Master Rulers* and the LEGO® bricks needed to learn about measuring and fractions. Included are all of the standard *Master Rulers*, LEGO bricks, and teacher materials needed for a class of 25 students.

- **Z991201 LEGO® Fractions Classpack.....\$85**
- **Z759210 Standard Master Ruler Classroom Set.....\$199**

Z991202 Master Ruler – Getting Started Package—\$255
A \$284 value!

GS
GETTING STARTED



LEGO® FRACTIONS CLASS PACK

Use this class pack with *The Master Ruler* to help your elementary students learn measurement, estimation, fractions, and more! By combining *The Standard Master Ruler* with LEGO® elements of varying sizes, we've created an easy and fun way for students to visualize abstract math concepts. The kit comes complete with enough LEGO bricks for 25 students, as well as an instructional video to get everyone started.

Z991201—\$85

MASTER RULER WORKBOOK

The *Master Ruler Workbook* is designed for use with both the standard and metric *Master Rulers*. Using the workbook, students practice measuring in both the English and metric systems. Additional worksheets help students add, subtract, reduce, and convert fractions. Scale drawing, perimeter, area, estimating, and metric conversions are also covered. The workbook includes 18 worksheets, an answer key, and background information. The workbook is available in both English and Spanish. Paperback, 24 pages. For ages 8+.

Z759209—\$6.50

Z991278 Master Ruler Workbook, Spanish—\$11





THE MASTER CLOCK

If your students are losing track of time, help them get back on schedule with *The Master Clock*. With clear overlays and color-coordinated hands, students can easily see and understand hours, half hours, quarter hours, minutes, and seconds. Plus, movable dials encourage students to match digital and analog time.

Z759214—\$12.50

Z759219 Master Clock

Teacher Model—\$15



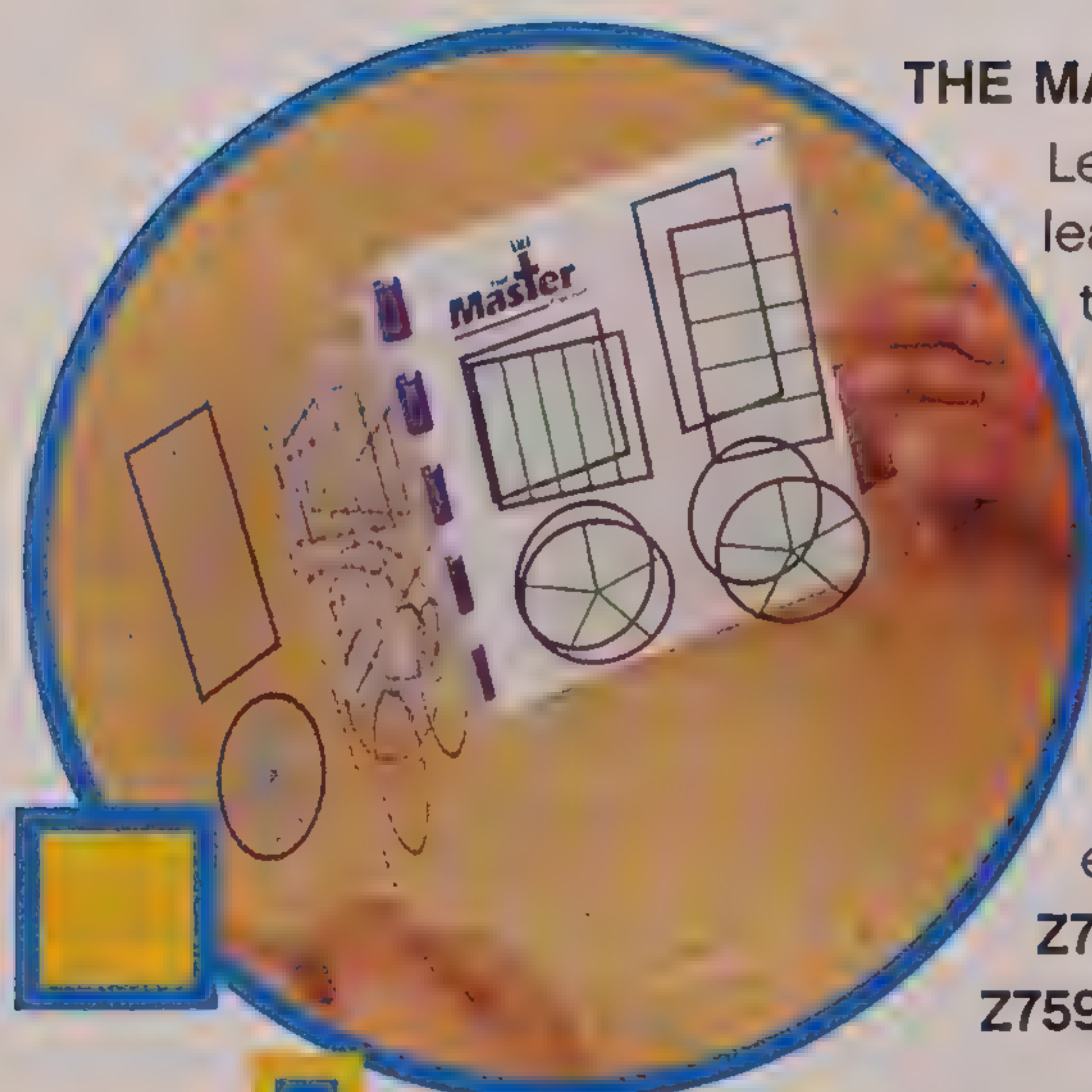
THE MASTER ANGLE

Here's a new angle in teaching: *The Master Angle*. Students use it to easily make, visualize, and understand all kinds of angles – acute, obtuse, straight, interior, exterior, and so on. And unlike some other angle tools, *The Master Angle* is easy to use and has no sharp points.

Z759215—\$4

Z759217 Master Angle

Teacher Model—\$4



THE MASTER FRACTION (2/3/5)

Learning fractions is a pivotal point in learning math – help your students grasp the concept with this fresh approach to fractions. *The Master Fraction (2/3/5)*, like *The Master Ruler*, uses clear overlays to show how a large unit breaks down into smaller units. This set of three helps students conquer equivalent fractions, reducing, mixed numbers, decimal and percent equivalents, and much more.

Z759213—\$15.95

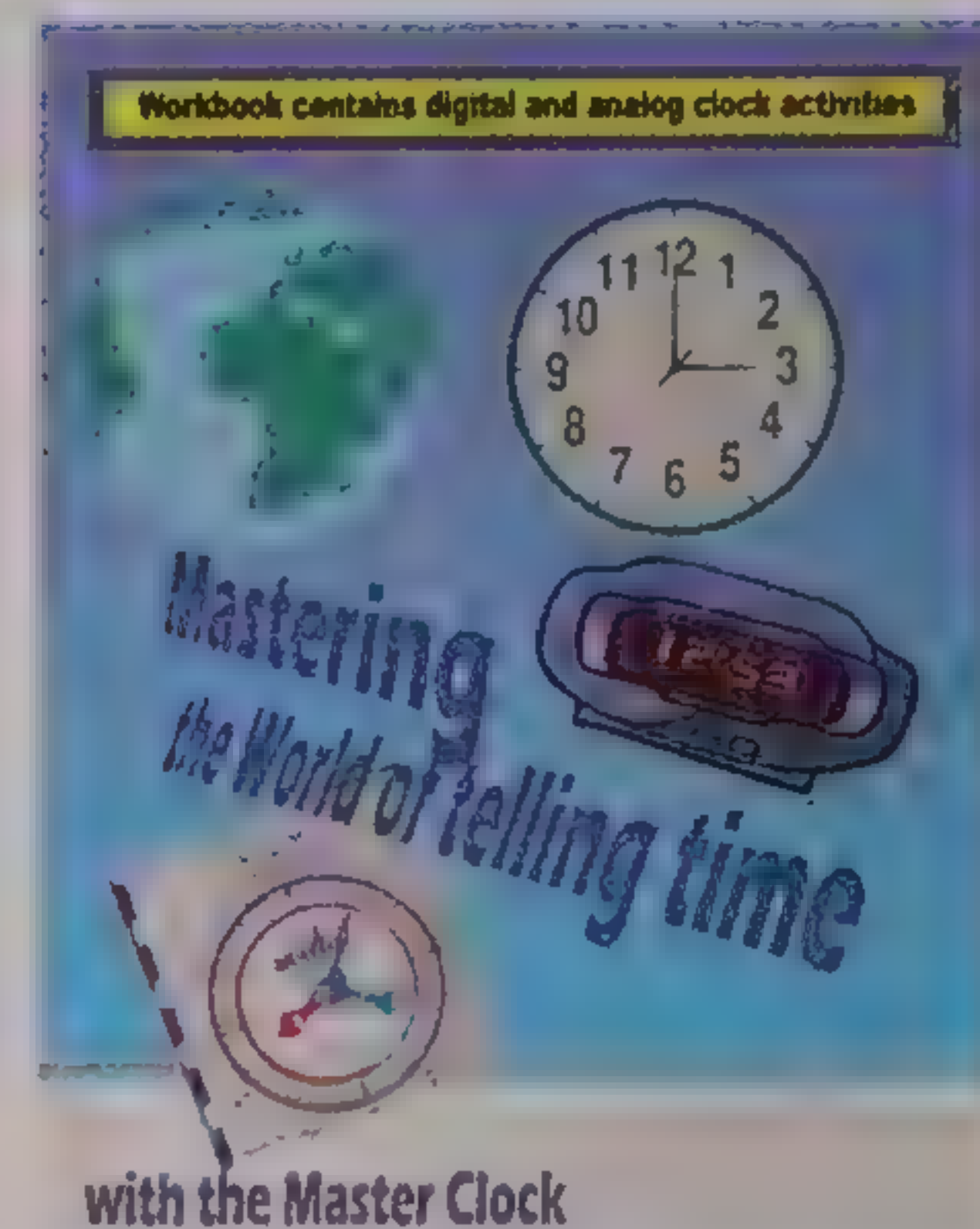
Z759216 Master Fraction

Teacher Model—\$15.95

MASTER CLOCK WORKBOOK

This workbook provides engaging hands-on activities that help students grasp the abstract concept of telling time. Combined with *The Master Clock*, the activities in this workbook help students develop the ability to read both analog and digital clocks. They also learn the concepts of hour, half hour, quarter hour, minutes, seconds, and lapsed time. The workbook contains 60 reproducible pages. For ages 6+. Paperback. 100 pages.

Z991311—\$10



with the Master Clock

MASTER ANGLE WORKBOOK

Designed to accompany *The Master Angle*, this workbook features engaging hands-on activities that enable students to see, measure, and form every kind of angle imaginable – obtuse, acute, interior, exterior, congruent, right, and more! They also learn about circumference, radius, diameter, and degrees. With 60 pages of reproducible worksheets, the workbook serves as a thorough lesson in angles. For ages 8+. Paperback. 76 pages.

Z991309—\$10



with the Master Angle

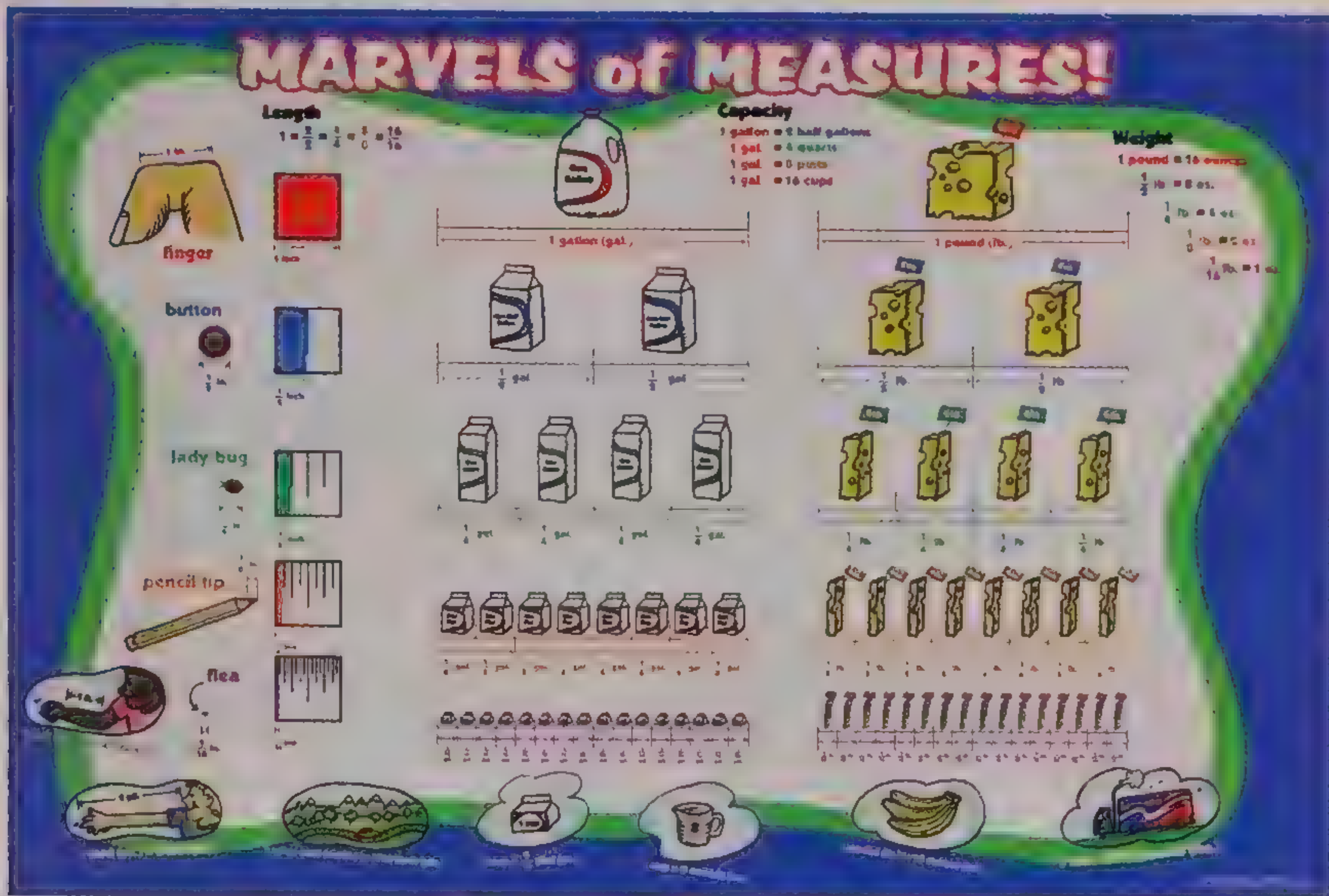
MASTER FRACTION WORKBOOK

Designed to accompany *The Master Fraction*, this unique fraction workbook enables students to quickly and easily learn fractions from the concrete to the abstract levels. They learn to name parts of a whole or set and explore ordering, equivalence, simplifying, and adding and subtracting fractions with common denominators, with mixed numbers, and by converting mixed numbers. The book's 60 reproducible pages provide engaging and fun hands-on activities and word problems with real-life application. For ages 8+. Paperback. 76 pages.

Z991310—\$10



with the Master Fraction



MARVELS OF MEASURES! POSTER

Many students have a difficult time mastering the skill of measurement. Understanding the increasingly smaller fractions of the inch is often a stumbling block. The *Marvels of Measures!* poster, especially when used in conjunction with *The Master Ruler*, can help students make sense of a confusing concept. Featuring friendly illustrations, *The Master Ruler Poster* shows common measuring estimates (example, one finger knuckle \approx 1 inch), and also shows the breakdown of 1 gallon and 1 pound into $1/2$, $1/4$, $1/8$, and $1/16$ increments. Your students will surely appreciate such a handy reference on your classroom wall!

Z991312—\$10

**XY COORDINATES
COME ALIVE!**



Pitsco's *Coordinate Geometry Board* and other "Pitsco Exclusive" products are proudly made at our manufacturing plant in Pittsburg, Kan., U.S.A. Visit us!

activity cards



THE FRACTION PLUS

The *Fraction Plus* cards and activity booklet were designed by two middle school teachers to aid students in their middle level math education. The cards cover fractional parts of the whole from tenths to halves, and feature four "suites" – decimals, percents, fractions, and circle graphs. The accompanying activity booklet features 10 games and activities that were developed to review and reinforce fraction, decimal, and percentage concepts. Some activities are intended for students working in pairs or groups of four, while others are created to work with as many students as you may have in your classroom. For each activity, a teacher's guide and reproducible student worksheet are included. Spiral-bound, 27 pages.

Level: High School

Z991317 Activity Book—\$5

Z991318 Card Deck—\$3

Z991322 Classpack (24 Decks and Activity Book)—\$60

PITSCO COORDINATE GEOMETRY BOARD

Hands-on x,y coordinate experiences!

Divided into the traditional four quadrants, the Pitsco *Coordinate Geometry Board* invites students to plot x- and y-coordinates, find the slope of a line between two points, graph a line, learn various quadrant characteristics, approximate areas of geometric figures, and much, much more!

This attractive, sturdy, 11" x 11" board is designed with 121 peg holes that snugly hold grooved wooden pegs. Simply insert pegs in various holes (x,y coordinates) and use the colored rubber bands to show various line segments. Holes are also available on both the x- and y-axes.

Contains the board, 25 pegs, and a bag of colored rubber bands.

Z725700—\$29.95

Z727160 Extra Pegs (pkg of 25)—\$3.95

Z727200 Extra Assorted Rubber Bands (1-3/8 oz bag)—\$1.95

GEOBOARD ACTIVITY CARDS – INTERMEDIATE

Peg some new ways to use the *Geometry Coordinate Board* with these *Geoboard Activity Cards*. Using the 121 cards that are grouped into 24 subject areas, students complete games and activities to learn about side counting, angles, line segments, coordinates, the Pythagorean theorem, slope geometry, fractions, Pascal's triangle, and much more.

Designed for Grades 3-9, the set includes a teacher's guide and comes in a box for neat and easy storage.

Z759141—\$39.75





LEGO duplo EARLY SIMPLE MACHINES SET III

With this updated version of the *Early Simple Machines Set*, young students build fun and simple models like a seesaw, a rolling vehicle, a spinning top, a raft, and many more. By playing with and manipulating the models, they experience pulleys, levers, gears, and wheels and axles while exploring energy, buoyancy, and balance. The set is designed for use by teams of two or three children. It includes full-color activity cards with pictorial instructions for eight models; a plastic punch-out sheet with eyes, sails, scales, and wings; and a plastic bin for easy cleanup and storage. For ages 5+.

Z779656—\$99.95



LEGO education EARLY SIMPLE MACHINES III TEACHER'S GUIDE

Designed for the 779656 *Early Simple Machines Set*, this activity pack includes eight engaging 45-minute lessons, each with extension activities of up to 20 minutes, and four additional open-ended problem-solving activities. The activities are designed to allow youngsters to explore, investigate, and solve tasks related to mechanical principles as well as learn about energy, balance, buoyancy, and much more.

Z209656—\$23.50



NUMBERS AND MOSAICS SET

With loads of number and sign tiles, this big set is the perfect way to start exploring early math concepts like addition, subtraction, and counting. The set also encourages number recognition, sorting, sequencing, and learning mathematical symbols and concepts. The mosaic tiles allow your students to learn about symmetry, shapes, colors, and sequences. Comes with blue storage container, activity guide, and four white building plates. For ages 3+.

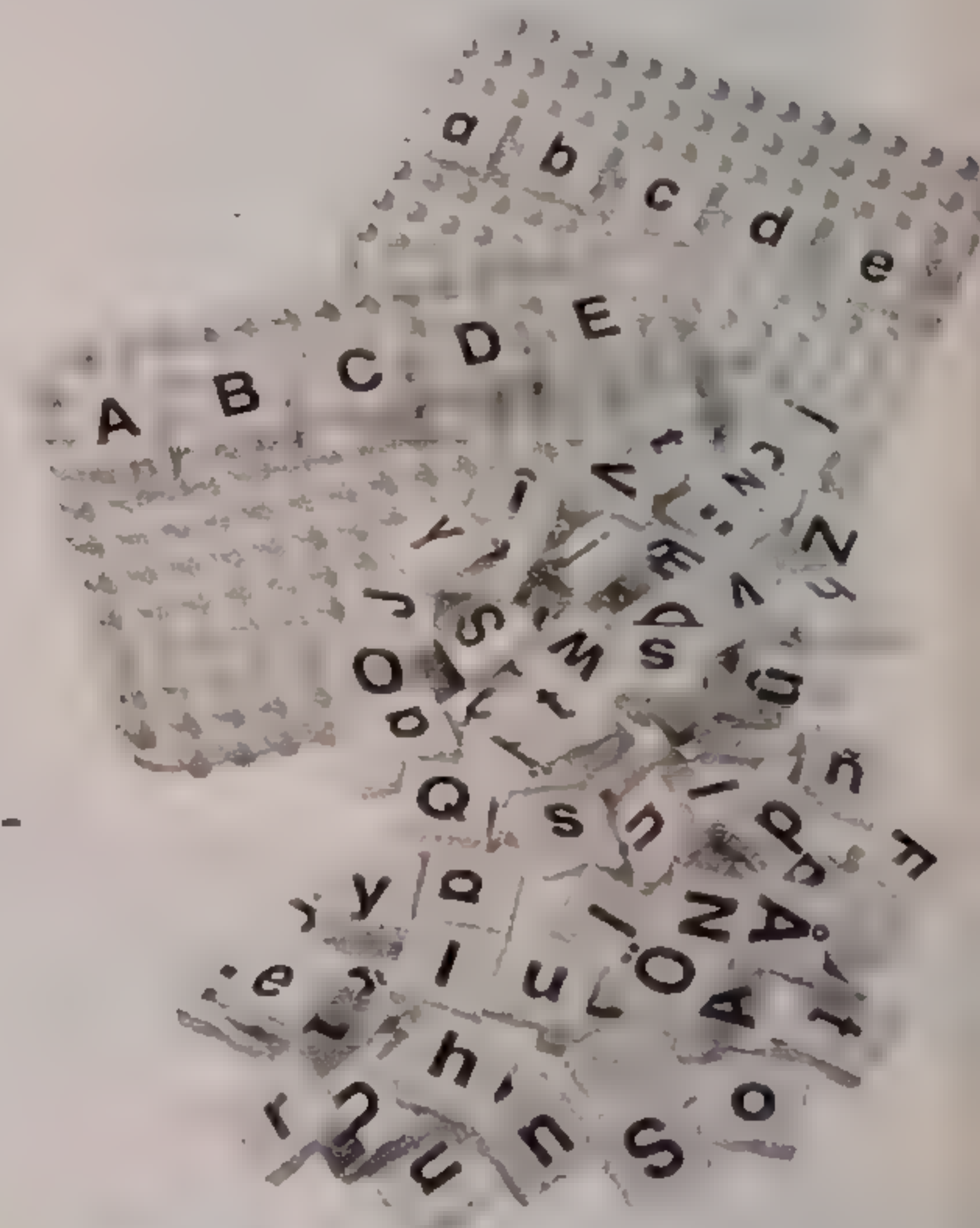
Z779531—\$104.95



LETTERS SET

This updated set now has more elements to help your students learn the sounds of letters as well as their lowercase and capital forms in a hands-on way. Also helps with other basic language, reading, and motor skills. For ages 3+.

Z779530—\$59.95



TECH MACHINES SET

The new *Tech Machines Set* allows your students to take their first steps into science and technology in a fun and engaging way while trying out their problem-solving skills and working on communication skills. By exploring a popular play theme of travel, your students will learn about machines, the tools used to work on them, and their functions. The *Tech Machines Set* comes with screwdrivers, integrated screws that click in place, reels, hooks, scoops; and propellers. Also comes with an activity pack that includes story-starters, problem-solving tasks, and full-color illustrations. For ages 3+.

Z779206—\$145.95



DINOSAUR SET

A popular prehistoric favorite is back! These dinosaurs are sure to excite your students' imaginations as they re-create exciting historic worlds and explore prehistoric life. Use the set as a springboard for discussions about extinction, survival of the fittest, herbivores and carnivores, and the various eras of the prehistoric world. The set features four distinct types of dinosaurs, including the triceratops and pterodactyl, along with other blocks to create the feel of a prehistoric environment. Includes 95 LEGO® DUPLO® elements.

Z779213—\$69.95



COMMUNITY PEOPLE SET

This set features three generations – kids, parents, and grandparents – in different clothes and uniforms indicating the jobs they have. Use these figures to populate towns with citizens and workers. Includes 18 DUPLO® figures.

Z779224—\$35.95



DOLLS FAMILY SET



Ideal for encouraging children to engage in role-play and explore the feelings of others, this updated set features multicultural male and female dolls and provides an opportunity to explore and create many different home environments. Using the dolls, children become more aware of their identities as they copy real-life patterns. Dolls measure six inches high and are compatible with LEGO® DUPLO® bricks. The set also includes kitchen and bedroom furniture, along with many unique extras and new brick colors. For ages 2+.

Z779215—\$104.95

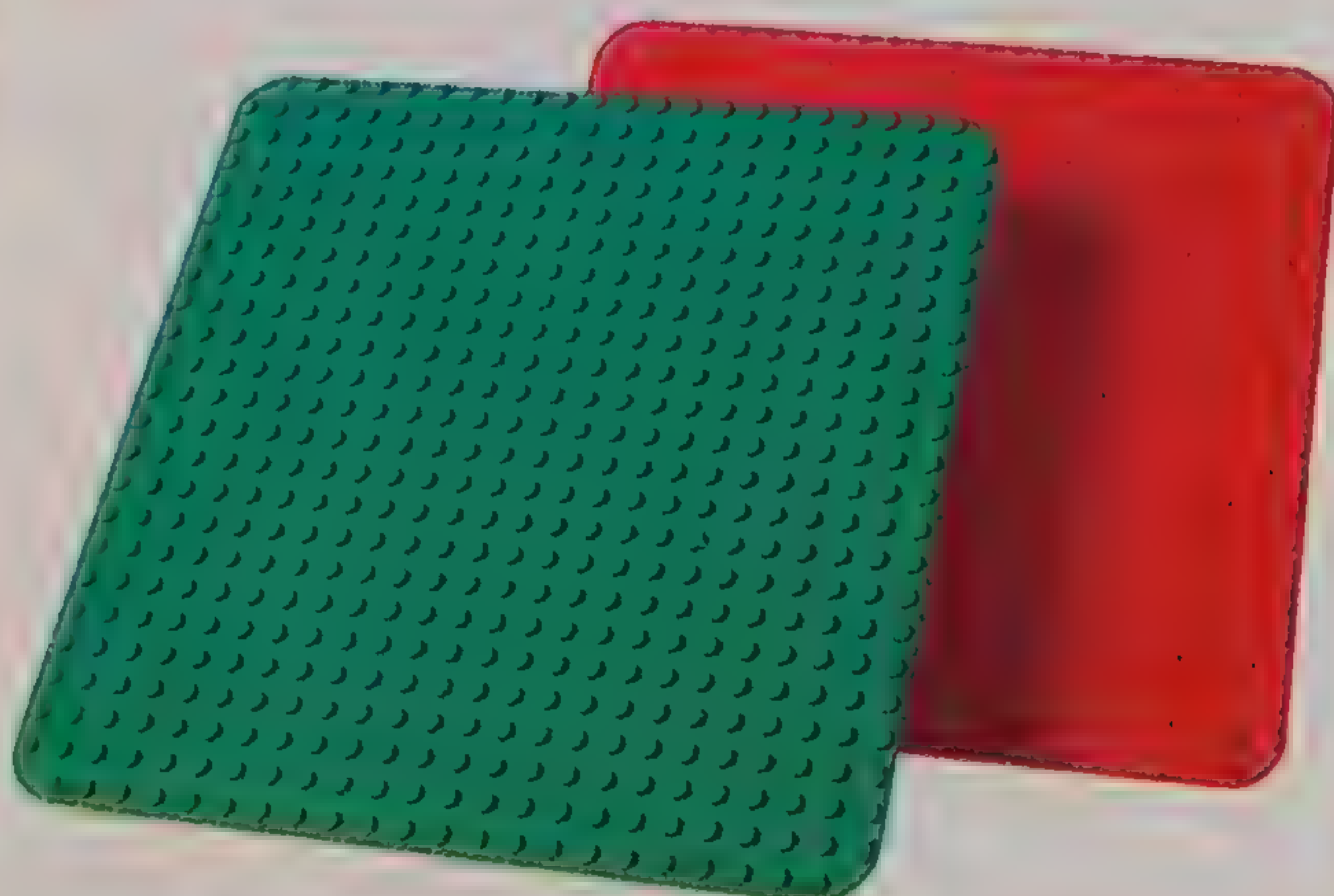


TUBES EXPERIMENT SET



This updated set helps children learn how things work while seeing gravity in action. The set includes lots of tube elements allowing children to explore dimensions, shapes, input, and output, while experimenting with cause and effect. For ages 1-1/2+.

Z779076—\$89.95



LEGO® DUPLO® BUILDING PLATES

Contains two large DUPLO® baseplates (one green, one red) measuring 38 cm x 38 cm.

Z779071—\$21.95



Bulk Sets



DUPLO® LARGE BULK SET

There's a whole world of possibility open to your students when they get their hands on the DUPLO® Large Bulk Set. This set is excellent on its own or as a supplement to other DUPLO sets and features 144 elements, including nonstandard bricks with eyes, wings, and more. Your students will find unlimited building potential while at the same time improving spatial intelligence and expressive language skills.

Z779027—\$36.95



DOORS, WINDOWS, AND ROOF TILES

This set includes a large variety of doors, roof tiles, and windows with shutters. With a total of 270 elements, students will have everything they need to put the finishing touches on construction projects. For ages 4+.

Z779243—\$30.95



LEGO® DUPLO® XL BULK SET



This set is not only huge but also has lots of special elements for your students' creations. Features 550 DUPLO® elements.

Z779090—\$149.95



WHEELS

Nothing but wheels – just what students want. This complete set includes tires in two different sizes, axles, and wheel hubs to make sets of wheels. Includes 360 LEGO® SYSTEM elements.

Z779241—\$34.95



COMMUNITY WORKERS SET

Every town needs police, firefighters, and rescue workers, along with crossing guards, mechanics, chefs, and photographers! These LEGO® mini-figures at work with the tools of their trade help students understand occupational roles related to their own lives. They explore where and how people work and how they contribute to community life. The set features 31 unique characters to help bring towns to life, as well as a variety of bikes, motorcycles, helmets, and other accessories. For ages 4+.

Z779247—\$44.95



BASIC JUST BRICKS

Add these bricks to your existing collection and be sure not to run out. The set includes bricks in six different colors and sizes. Includes 576 LEGO® SYSTEM elements.

Z779251—\$38.95



X-LARGE BLUE STORAGE BIN

16.5" x 12" x 10".

Z209840—\$16



SMALL RED STORAGE BIN

15" x 12" x 2.5".

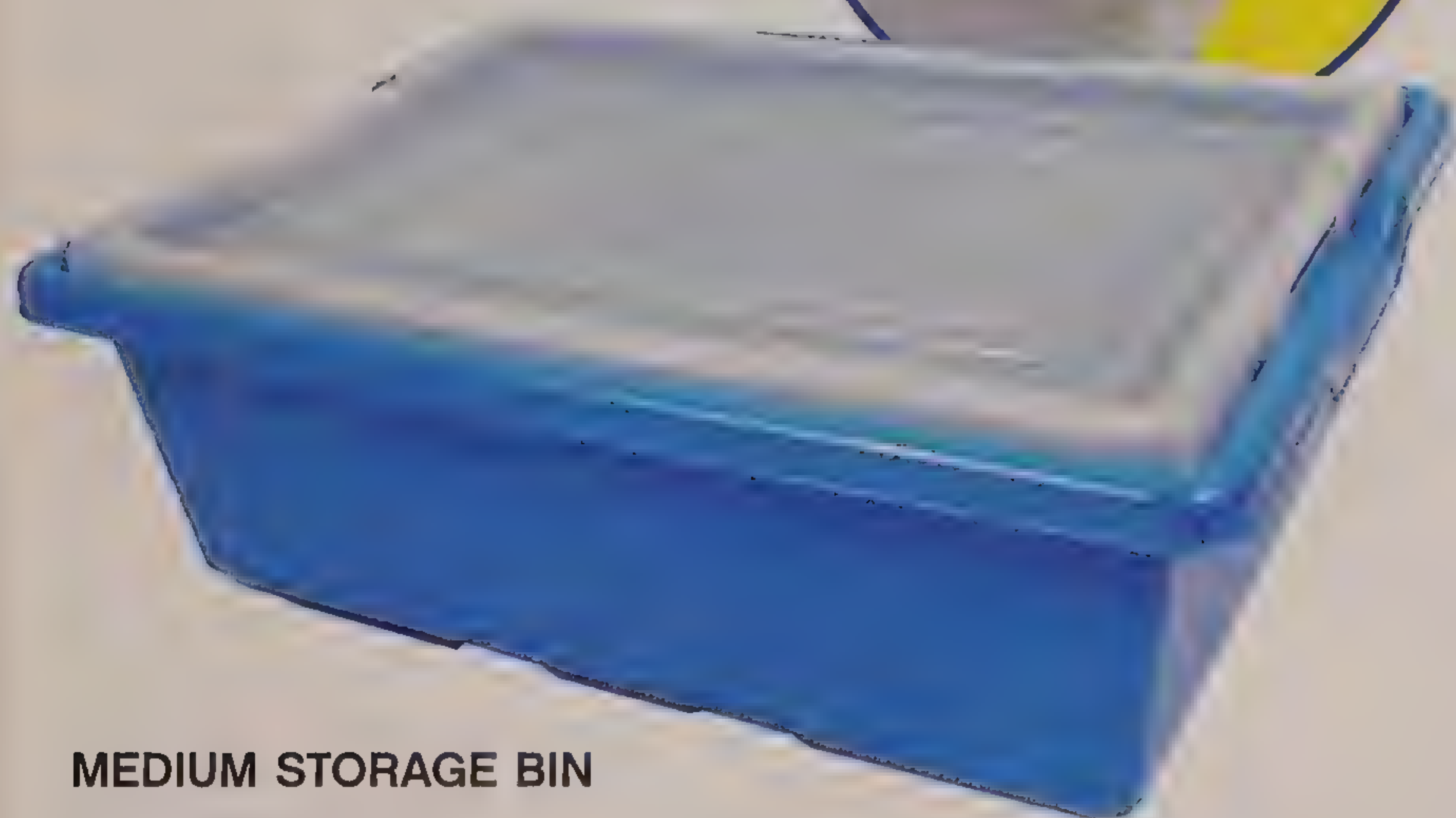
Z779925—\$5.75



EXTRA SMALL YELLOW STORAGE BIN

12" x 7.5" x 2".

Z779926—\$4.25

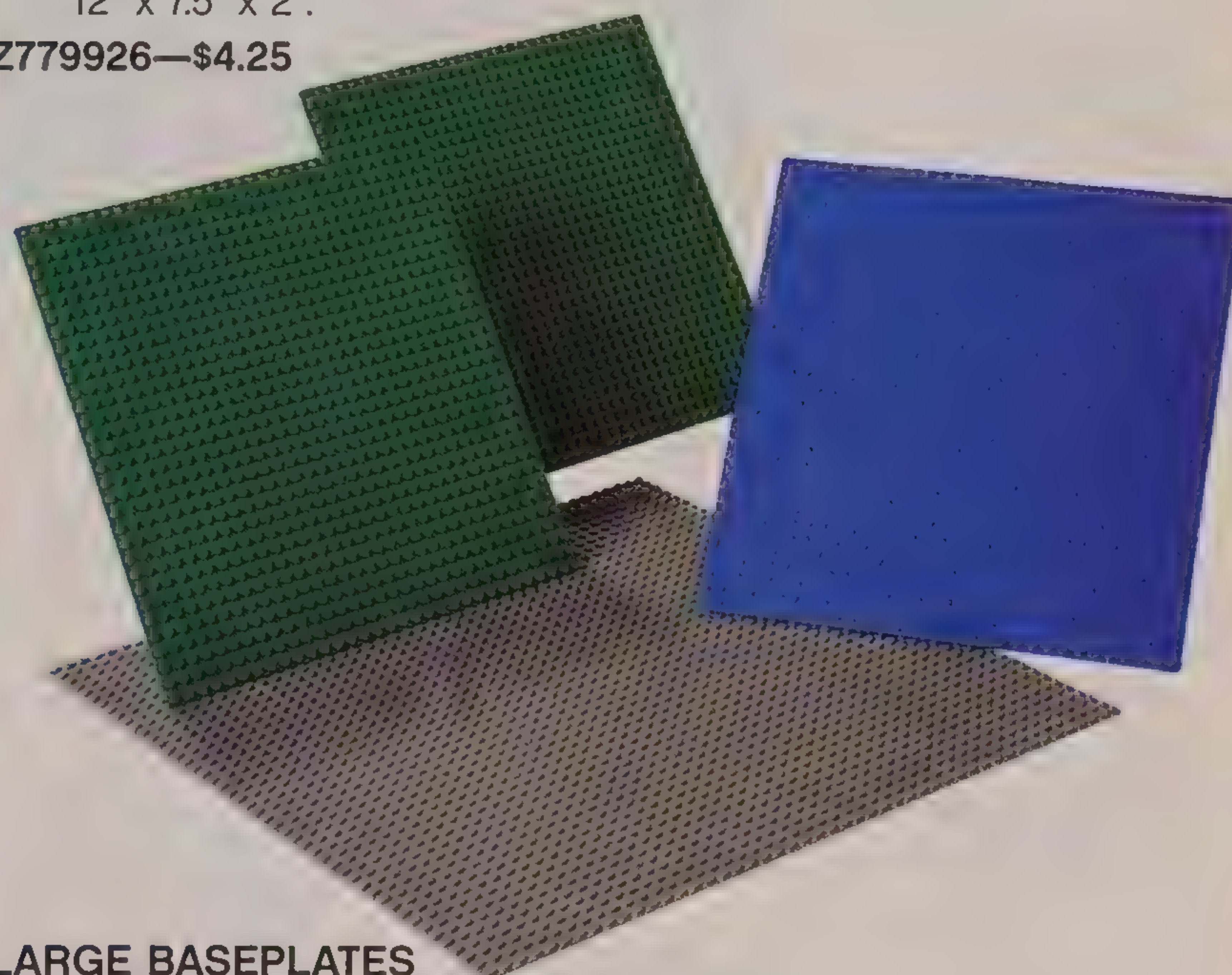


MEDIUM STORAGE BIN

16.5" x 12" x 6".

Z779001 Blue—\$9

Z991319 Gray—\$9

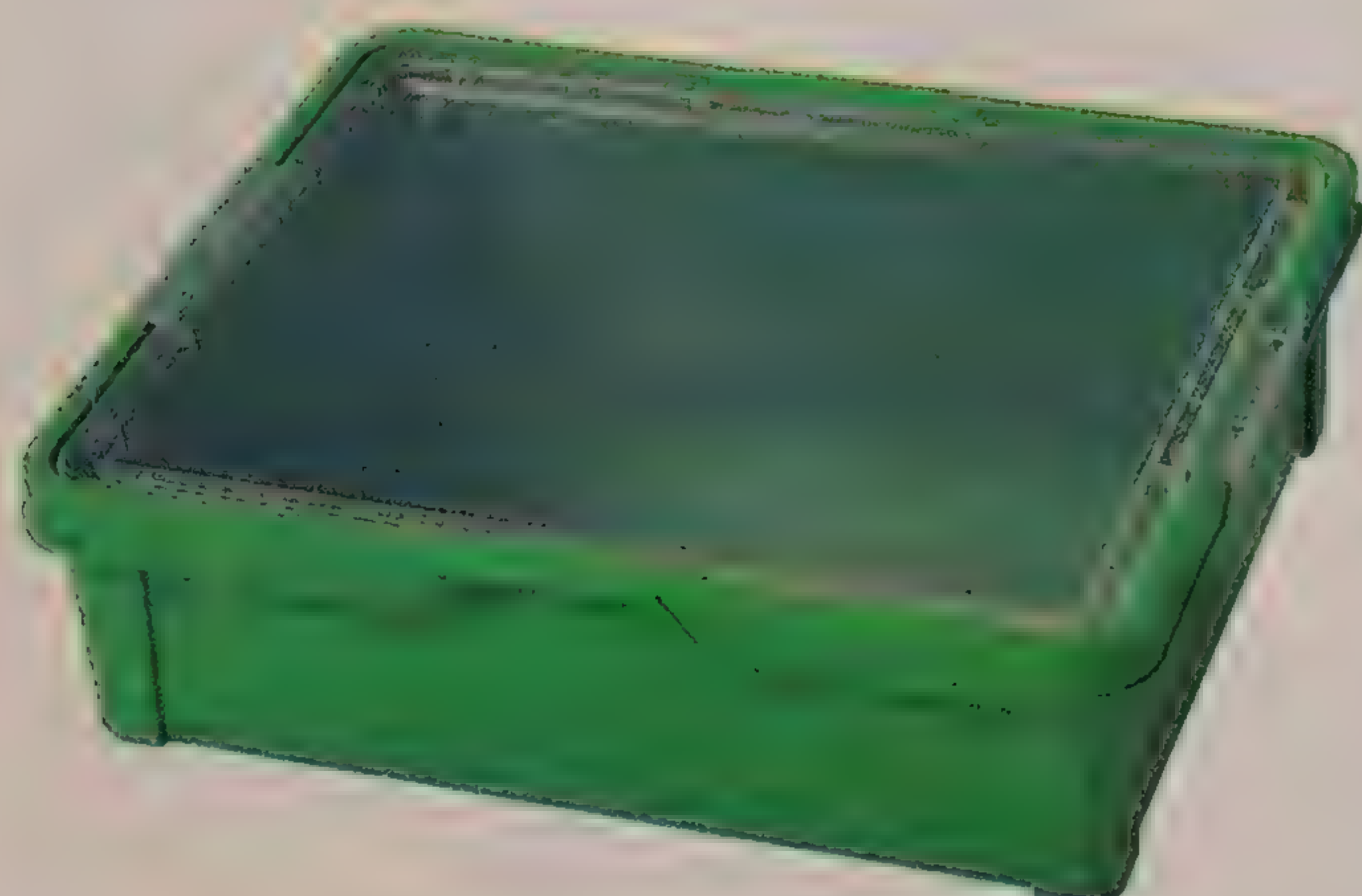


LARGE BASEPLATES

Children need a foundation on which to build, and each durable baseplate forms a solid base for all LEGO® building bricks.

Includes one gray baseplate (38 cm x 38 cm), two green baseplates (25 cm x 25 cm), and one blue baseplate (25 cm x 25 cm).

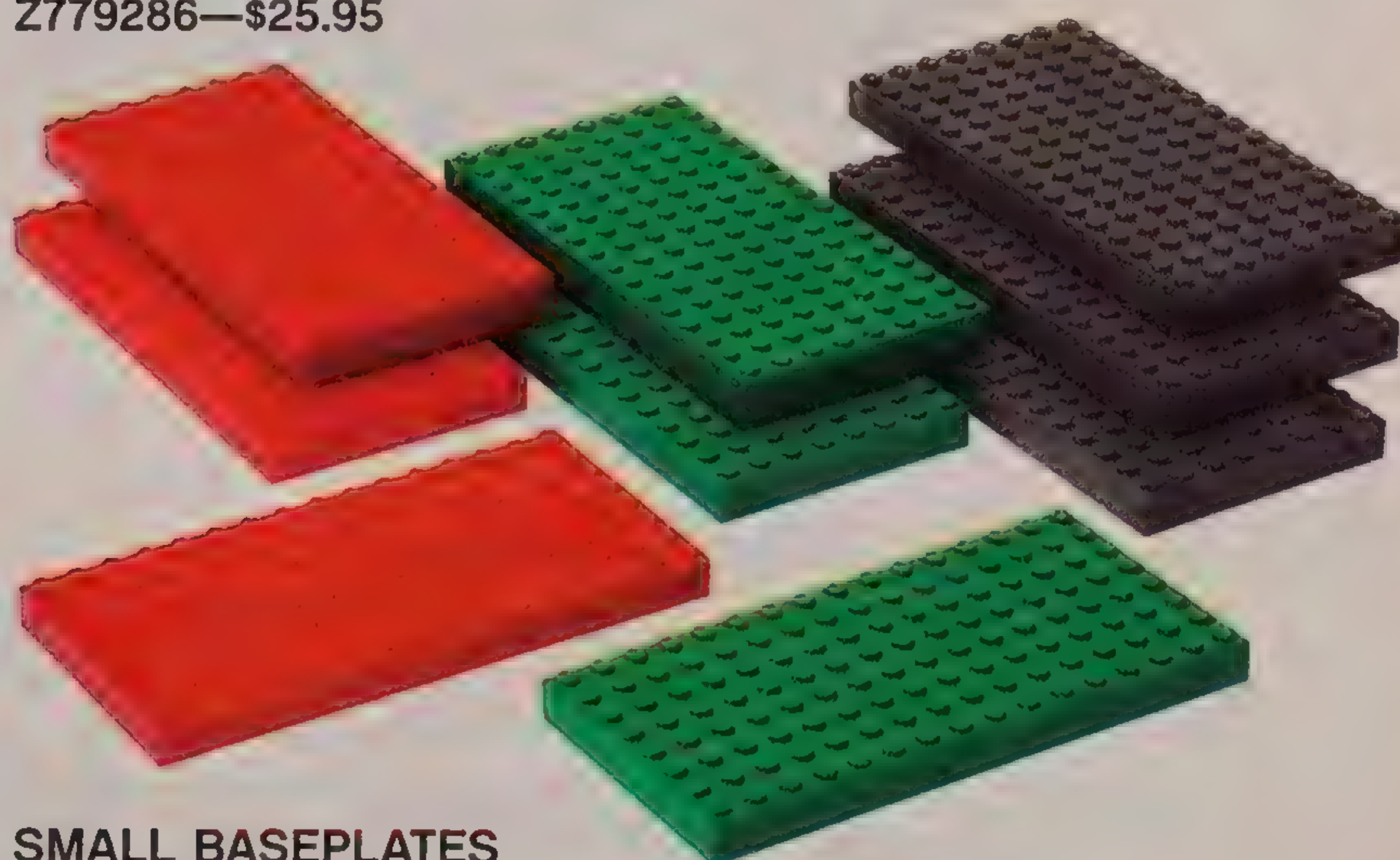
Z779286—\$25.95



MEDIUM GREEN STORAGE BIN

15" x 12" x 4.5".

Z779922—\$10



SMALL BASEPLATES

LEGO® creations work much better with a baseplate foundation, and this set includes nine baseplates (6 cm x 12.5 cm) in three different colors: red, green, and gray.

Z779279—\$15.95



SMALL PARTS STORAGE CABINETS

These sturdy storage cabinets are perfect for small LEGO® parts. In fact, they are the exact cabinets used by the LEGO Education customer service department! The cabinets stack securely or can be mounted to the wall using handy pre-cut keyhole slots. The drawers of the cabinets are transparent and dividable, which makes part identification and organization a snap. The drawers also feature finger-grip pulls for easy access and rear-stop tabs to prevent the drawers from falling out and spilling the contents. The 64-drawer unit provides excellent small parts storage, while the 44-drawer unit features 32 small drawers and 12 larger drawers big enough to hold an *RCX* or *NXT Brick* or LEGO battery box.

Z991186 64-Drawer Cabinet (20" x 15" x 6")—\$35

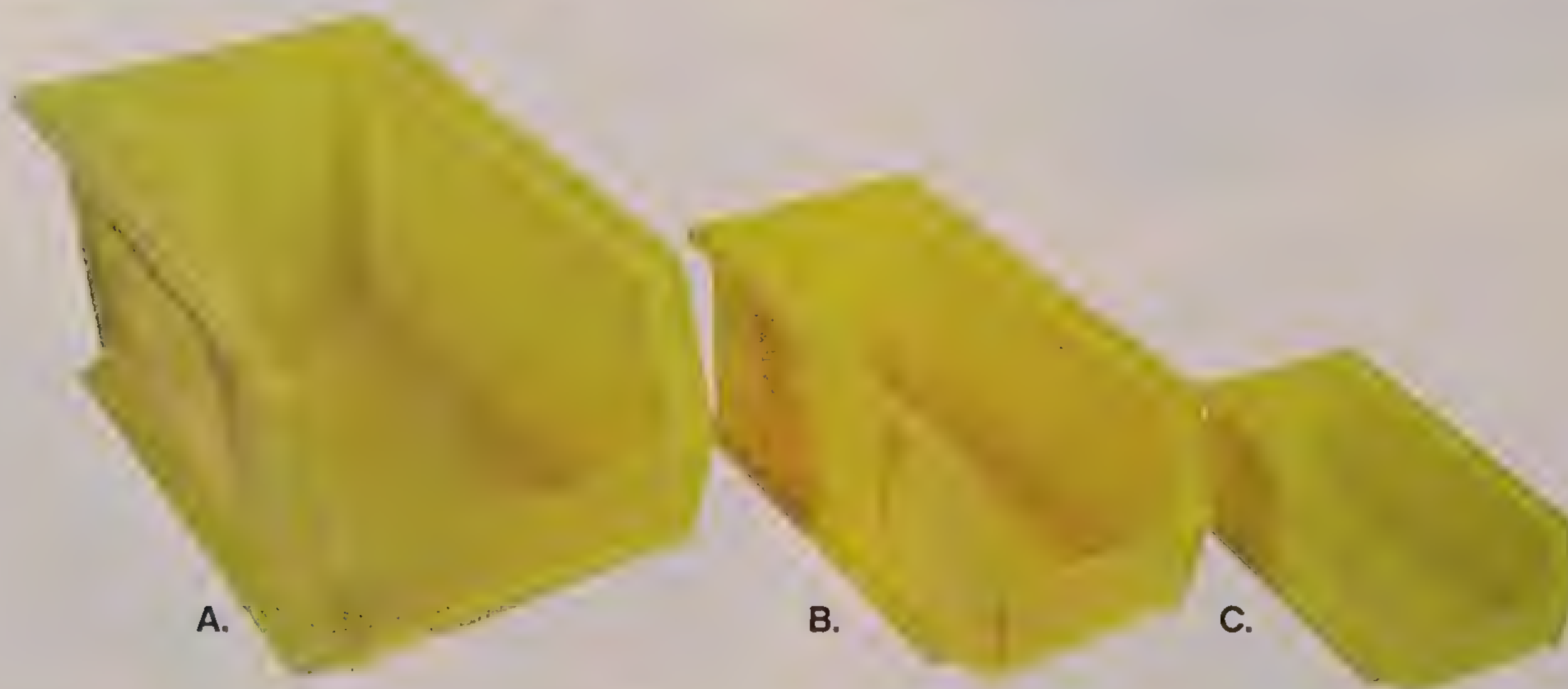
Z991185 44-Drawer Cabinet (20" x 16" x 6")—\$35



HEAVY-DUTY UTILITY CART

Do you ever find yourself trying to move stacks of LEGO® Education sets from one classroom to another, afraid you'll drop a set and lose its contents in the hallway? Or have you ever thought about making your LEGO curriculum more mobile, able to be shared with other teachers and students in other disciplines? Then this cart is perfect for you! Stack all of your sets, activity packs, extra parts, books, and other storage bins on this Rubbermaid cart, and your worries will be over. With heavy-duty casters and four-inch lips around both shelves, the contents of the cart stay securely in place. Roll it from one classroom to another, or from a classroom to the gym for after-school projects or simply use it in your classroom as a storage and distribution aid. The cart measures 17-7/8" x 19-1/4".

Z991176—\$150



STACKABLE STORAGE BINS

These sturdy plastic storage bins will come in handy in any classroom, especially one with thousands of small LEGO® parts. Use for separating bricks by color or shape or for storing items like battery boxes, leads, batteries, *RCX* or *NXT Bricks*, and tires. The bins' sturdy one-piece construction is rust- and corrosion-proof, so your stored items will be safe for years. The bins stack securely atop each other and store on shelves, carts, or under tables. Molded from high-density polypropylene, the bins are resistant to weak acids and alkalis. Available in three sizes, yellow only.

A. Z991138 (14-3/4" x 8-1/4" x 7")—\$13

B. Z991137 (10-7/8" x 5-1/2" x 5")—\$7

C. Z991136 (7-3/8" x 4-1/8" x 3")—\$3



SAFE-T EIGHT-PIECE GEOMETRY SET

One word comes to mind when you see this kit: *nifty*. That's because all of the compact drawing instruments are thoughtfully designed and fit securely into the handy snap-lid storage case. The kit includes a 15 cm ruler, protractor, two triangles, a SAFE-T Compass, pencil, eraser, and sharpener.

Z756086—\$6.50



EXTRA MEASURES ELECTRONIC SCALE

This economical, electronic scale measures in both ounces and grams and is suitable for weighing objects up to one kilogram, or two pounds, three ounces. The scale operates on four AA batteries only.

Resolution:

- Up to 500 grams at 1-gram increments
- 500 to 1,000 grams at 2-gram increments
- Up to 16 ounces at 0.25-ounce increments
- 16 to 36 ounces at 0.5-ounce increments

Z756096—\$79.95



STANLEY TAPE MEASURE

This 3/4"-wide yellow blade has marked inches and feet, plus stud marks every 16". Sturdy steel case.

Z750379 (12')—\$16.95



KITE TWINE

Polyester/cotton, roll of 300 feet.

Z751912—\$2



WIDE RUBBER BANDS

Approximately 1/2" width x 2" length.

Z756136 (pkg of 50)—\$1.95



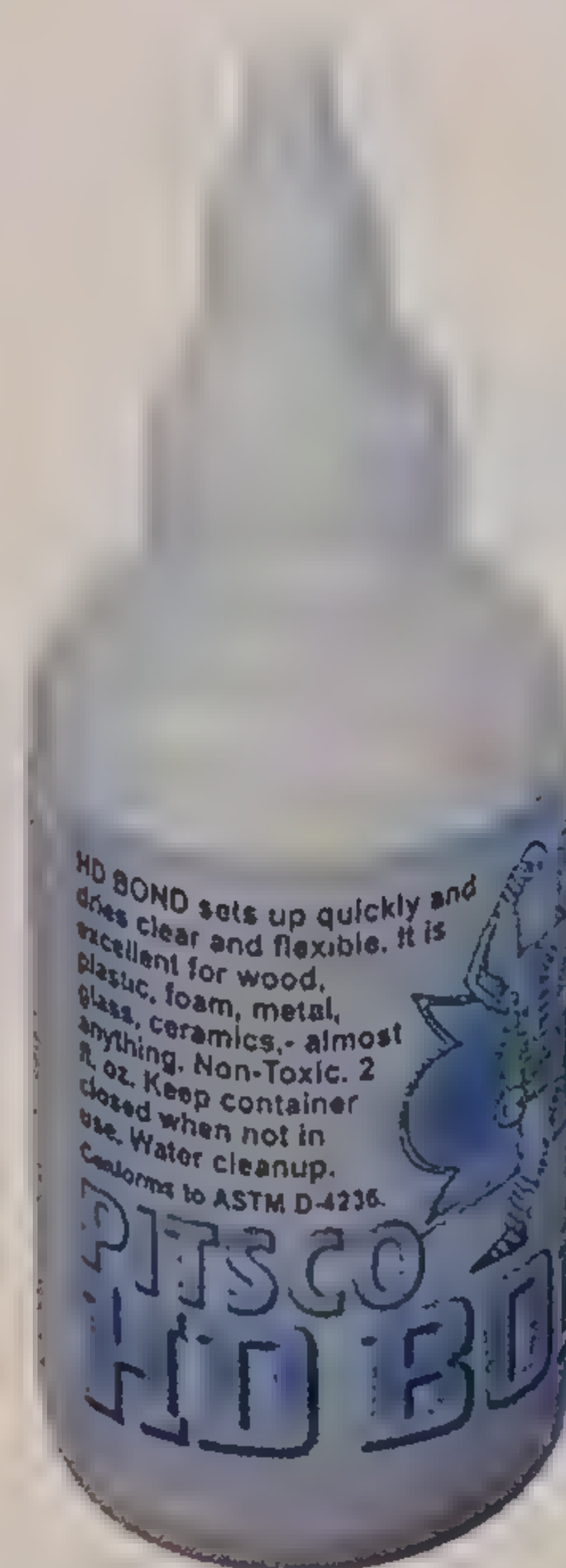
COLORED STRUCTURES GLUE

Pink, green, and blue glues are a hit with teachers and students alike. Specially formulated for student-engineered wooden structures.

	Pink	Green	Blue	
2 oz	Z751745	Z751751	Z751746	\$1.75 each
16 oz	Z751747	Z751749	Z751748	\$4.50 each
10 or more 2 oz (one color)—\$1.60 each bottle				
10 or more 16 oz (one color)—\$4.05 each bottle				

EMPTY TWO-OUNCE GLUE BOTTLES WITH SPOUTS

Z752058 (pkg of 25)—\$16



HD BOND ADHESIVE

This revolutionary adhesive has excellent properties for structures and other applications. It dries quickly and provides a strong, flexible bond. It is nontoxic, nonpenetrating, and dries clear. Two-ounce squeeze bottle.

Z754618—\$1.95



TEST LEADS

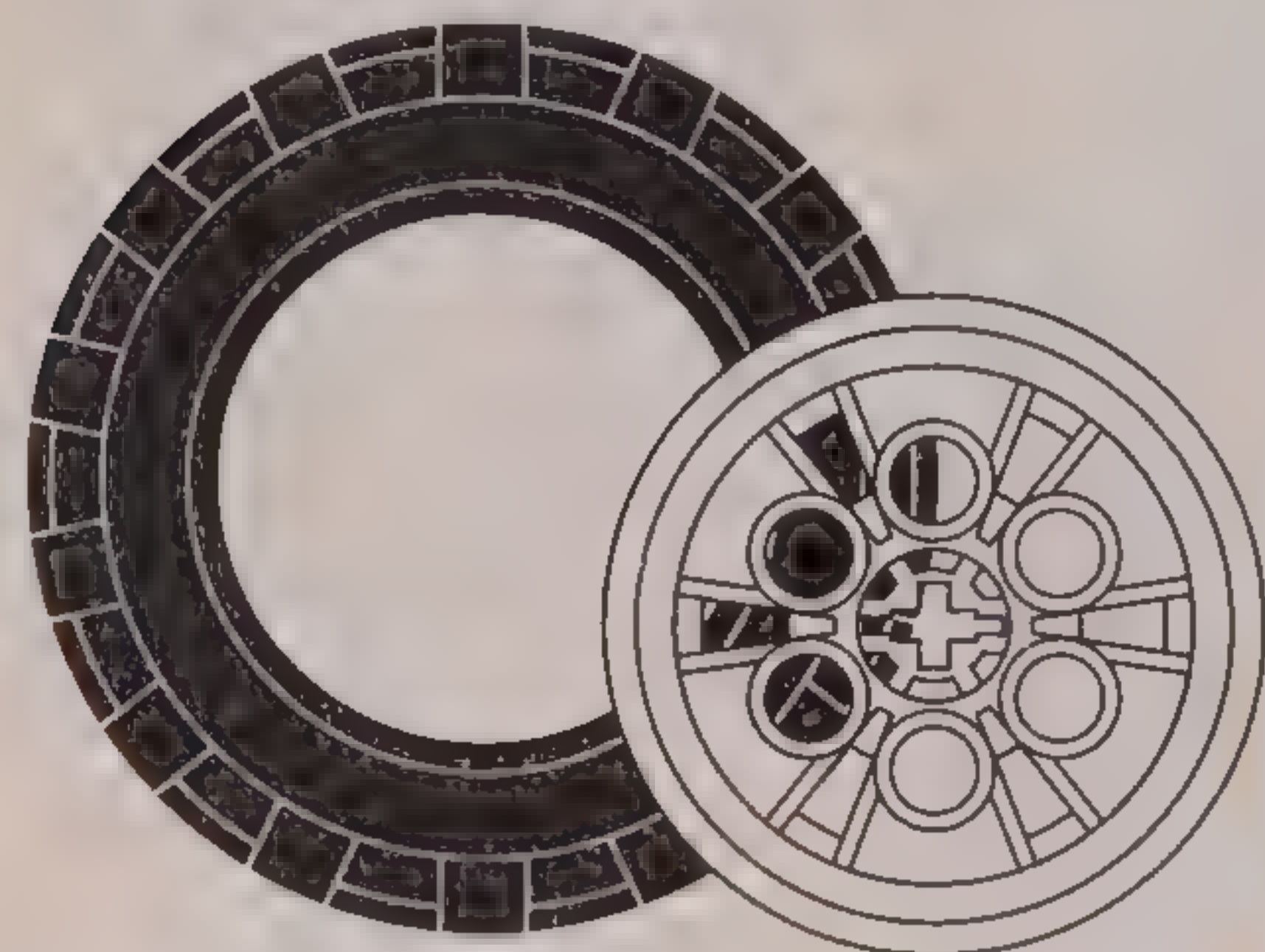
Use these handy test leads for a variety of projects. Alligator clip ends ensure a positive connection. 14" long in assorted colors.

Z756197 (pkg of 10)—\$6.50

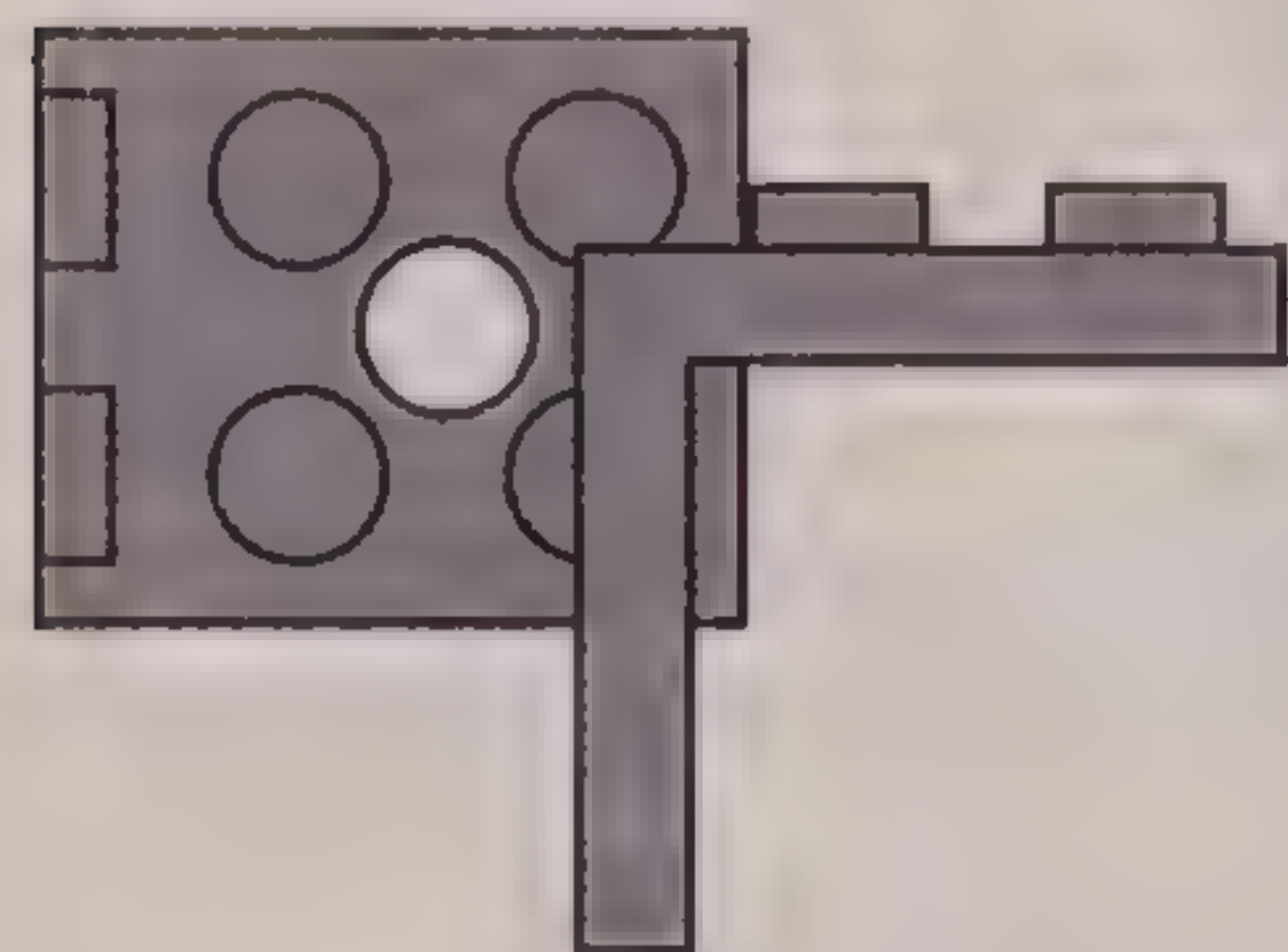
Tools, Resources, and Parts



HUBS
Z970010 (gray, 50 pcs)—\$10



RED ROVER TIRES AND HUBS
Z970021 (pkg of 8, 4 each)—\$10



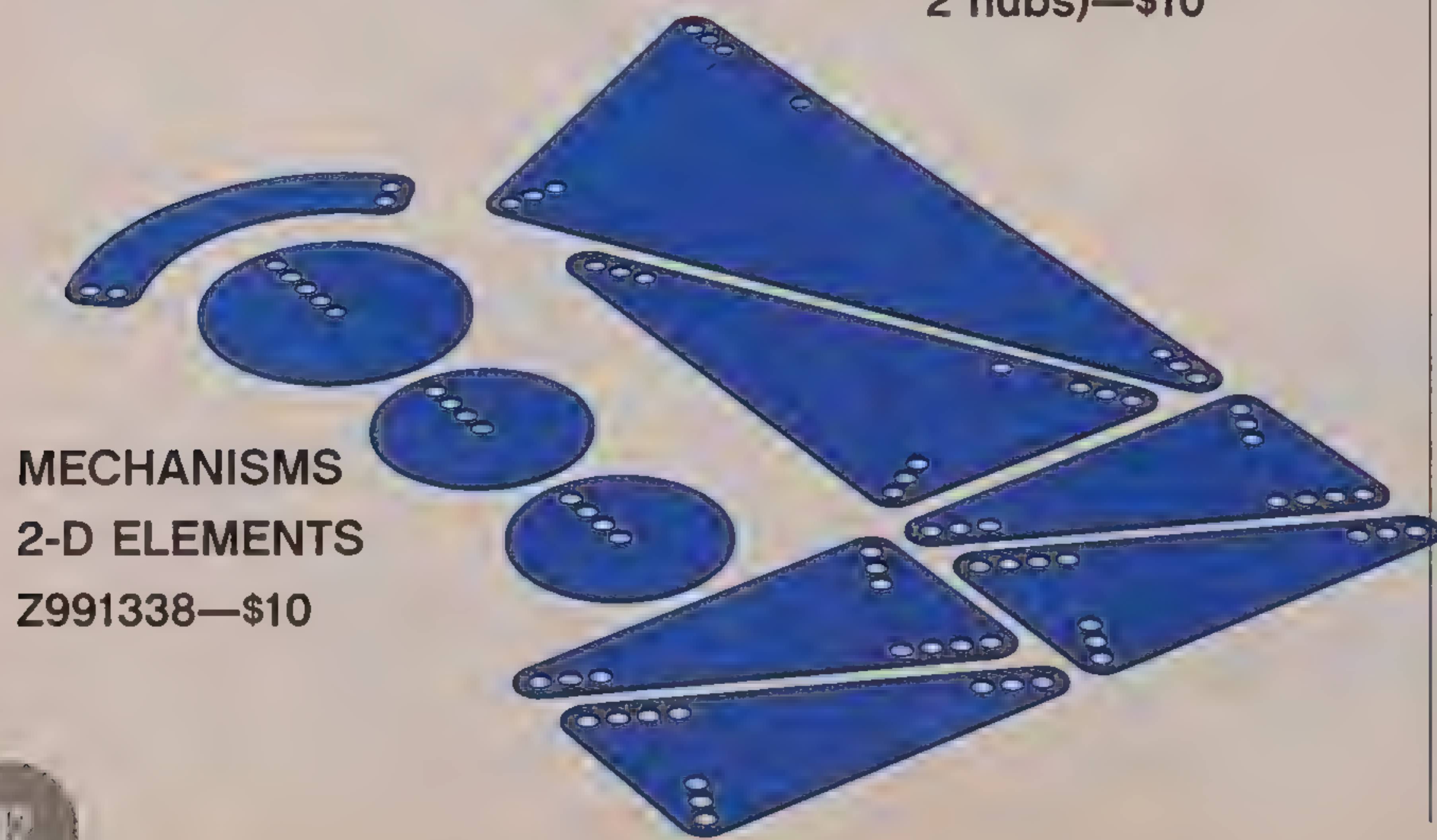
2 X 2 ANGLE PLATE
Z970036 (gray, 25 pcs)—\$10



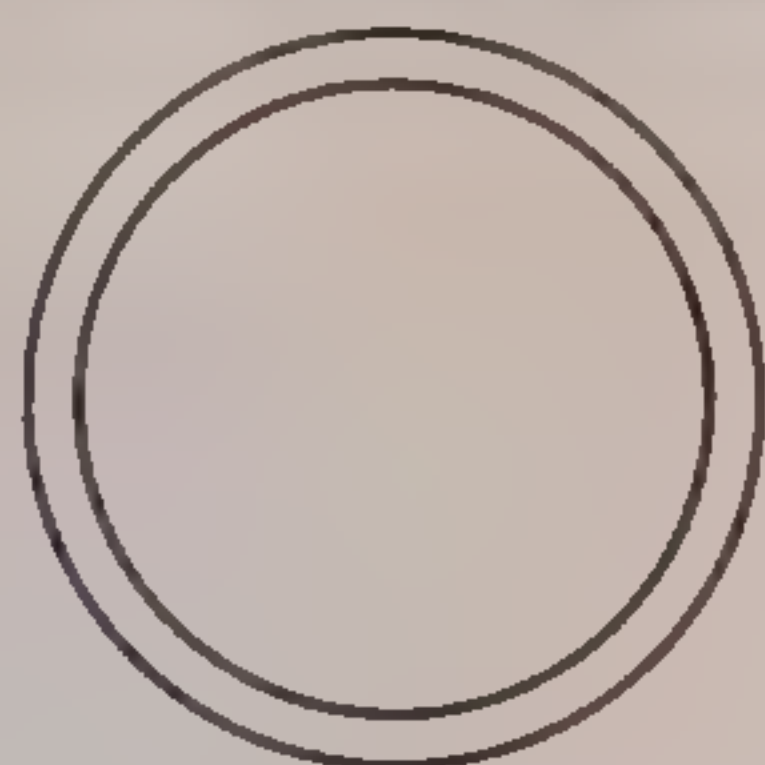
BLACK BAND
Z970120 (black, 50 pcs)—\$10



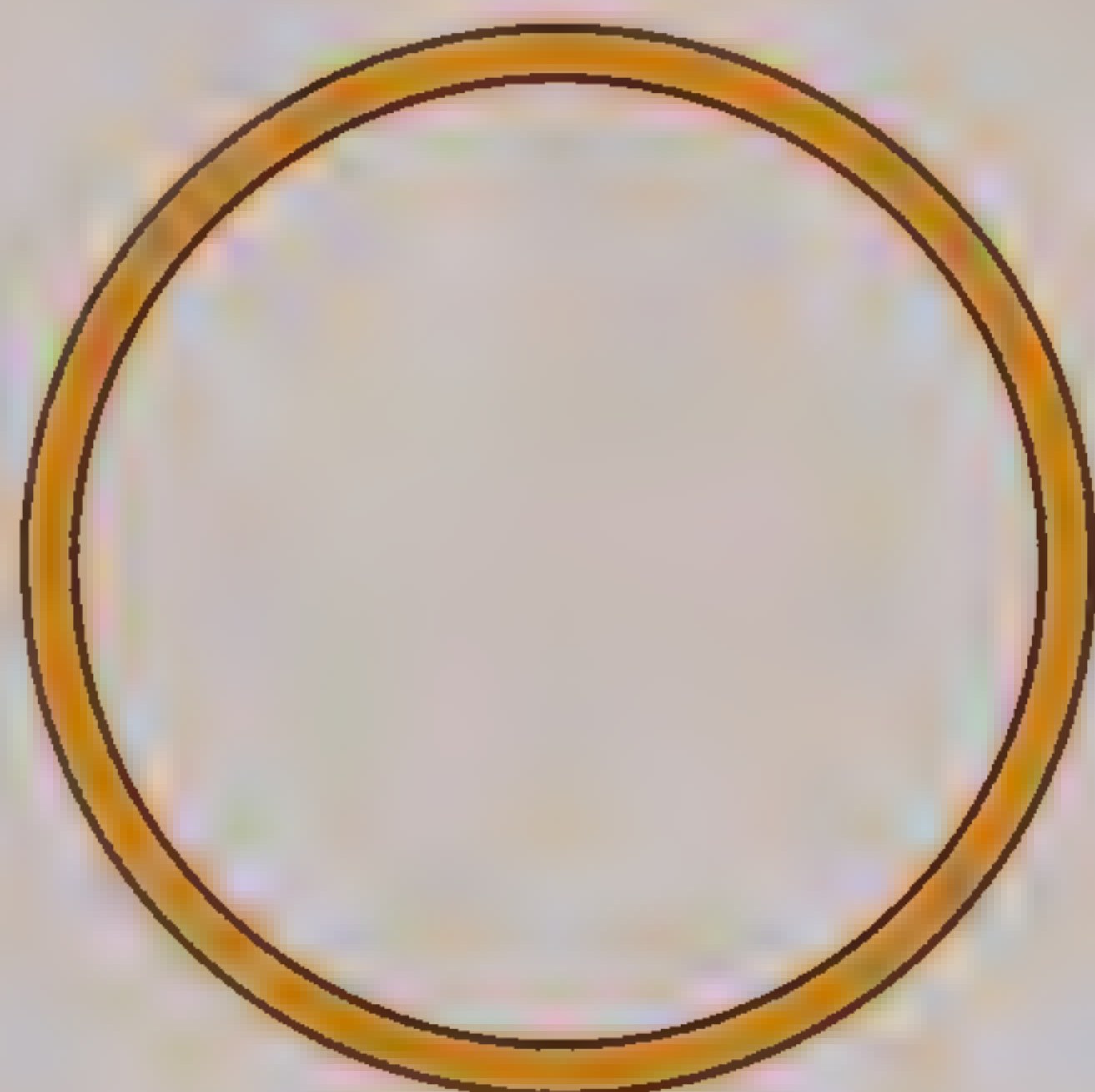
RED BAND
Z970121 (red, 25 pcs)—\$10



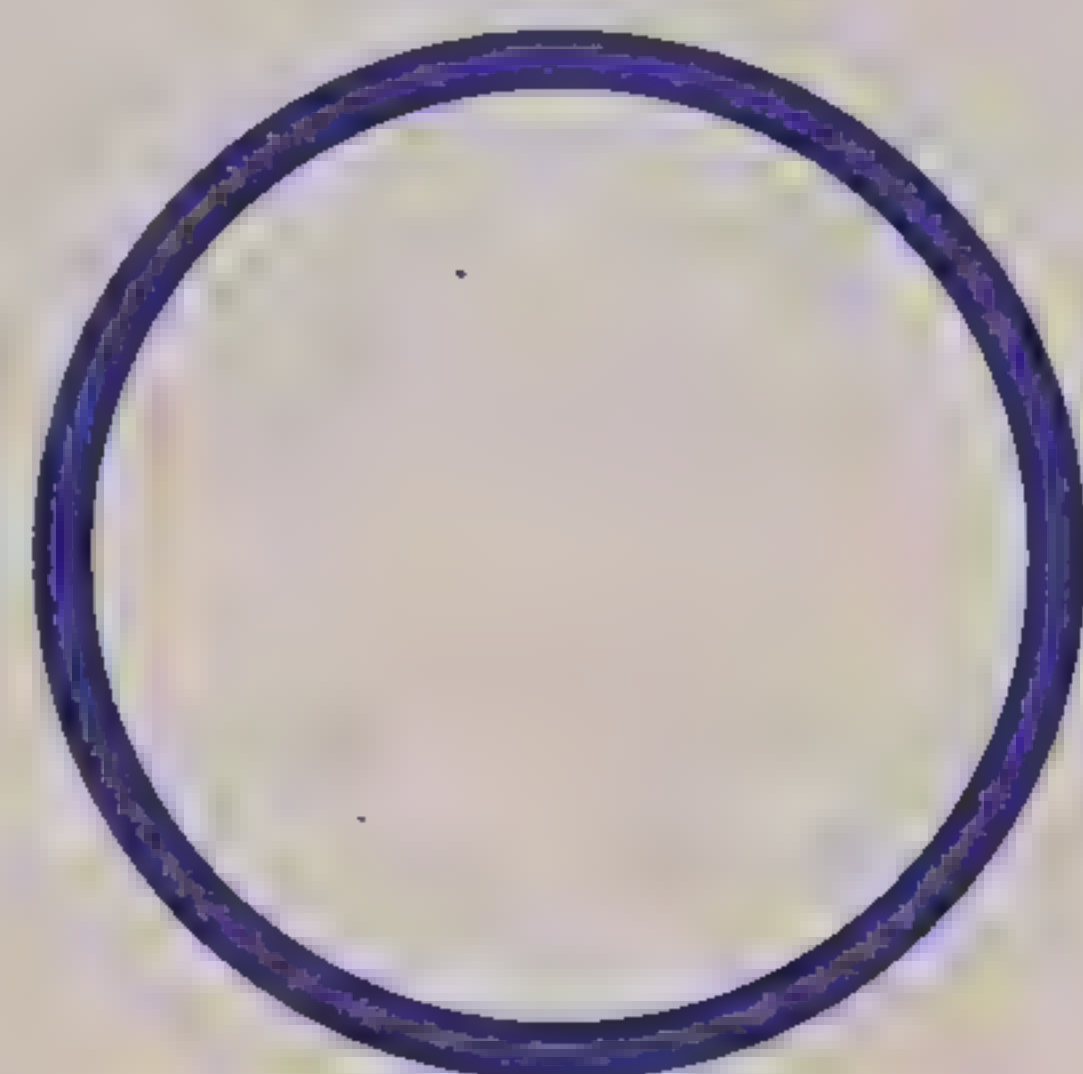
MECHANISMS 2-D ELEMENTS
Z991338—\$10



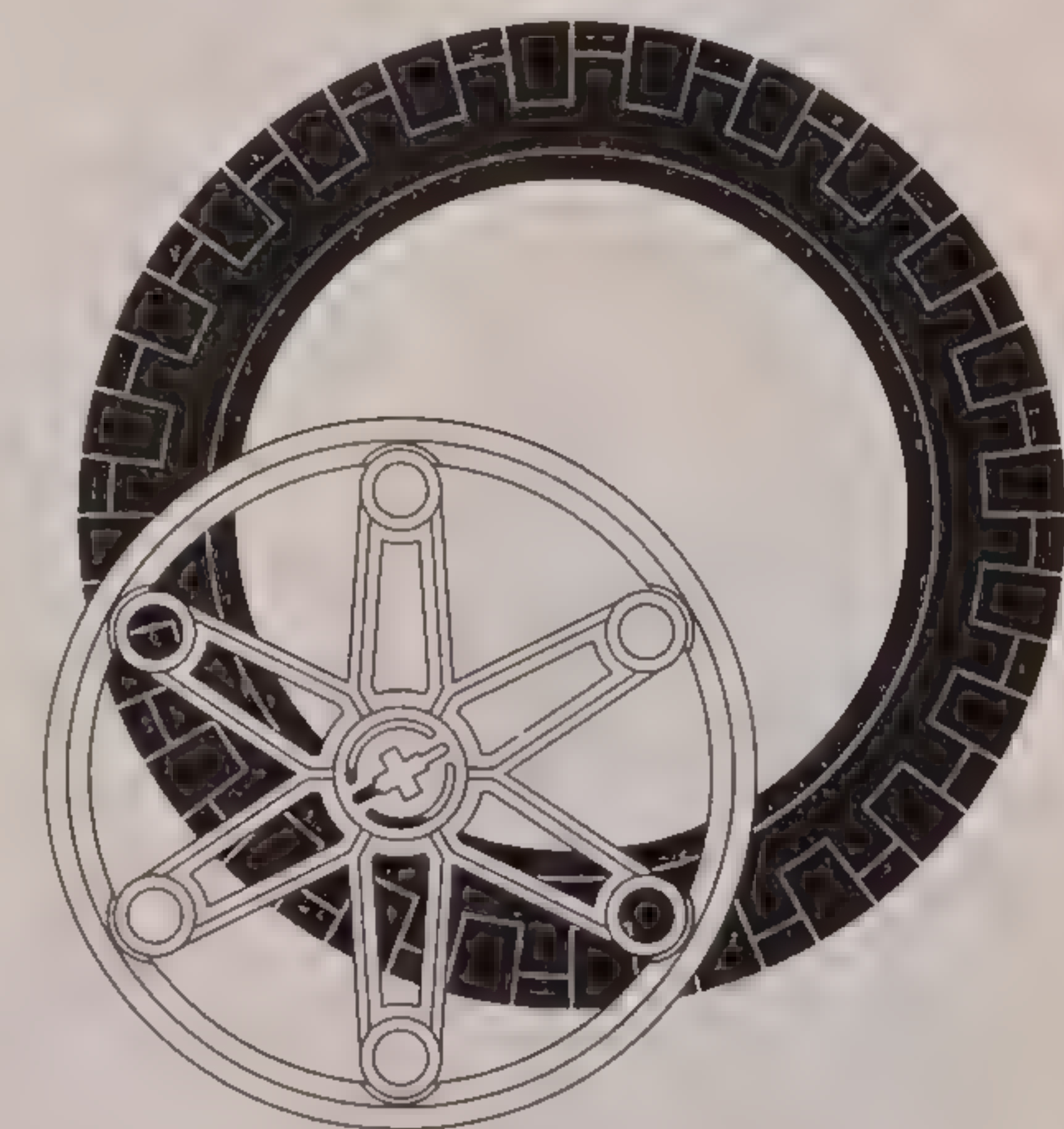
SMALL BAND
Z970122 (white, 24 pcs)—\$10



BAND
Z970004 (yellow, 25 pcs)—\$10



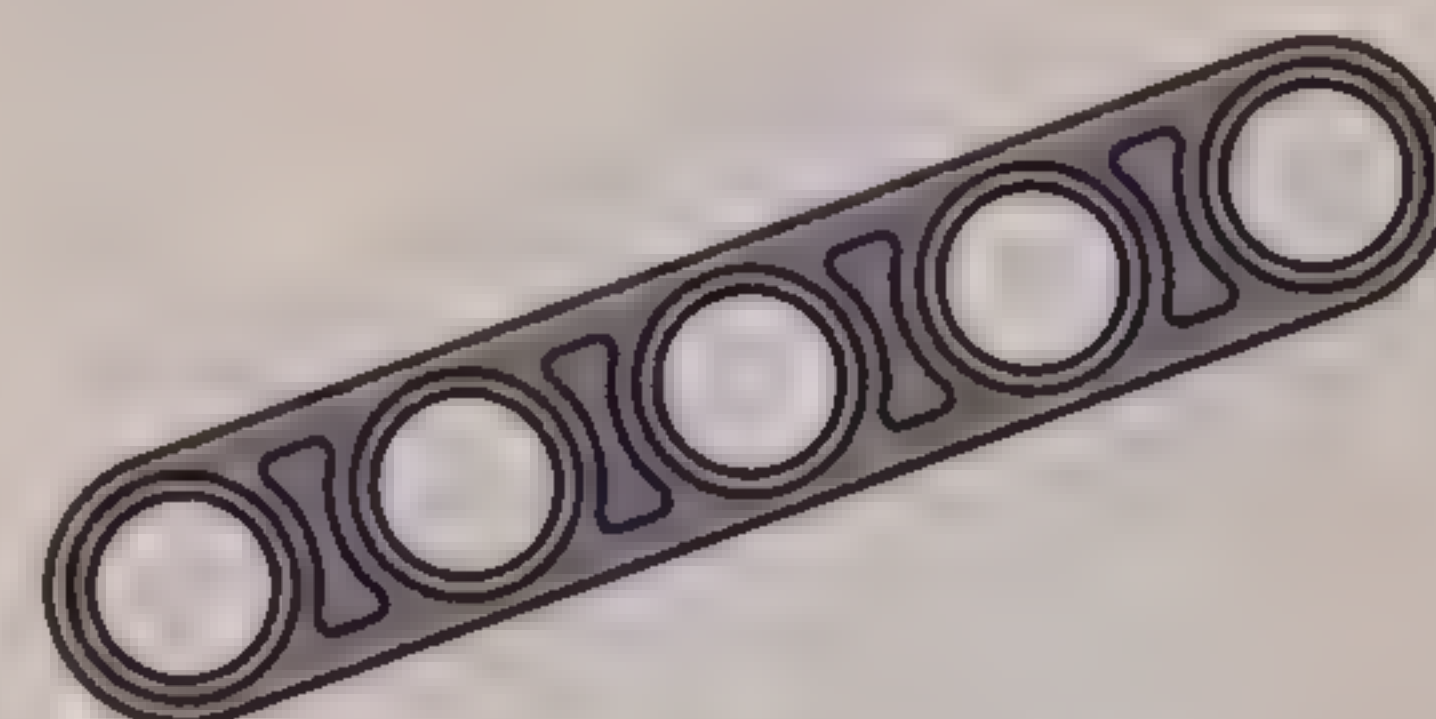
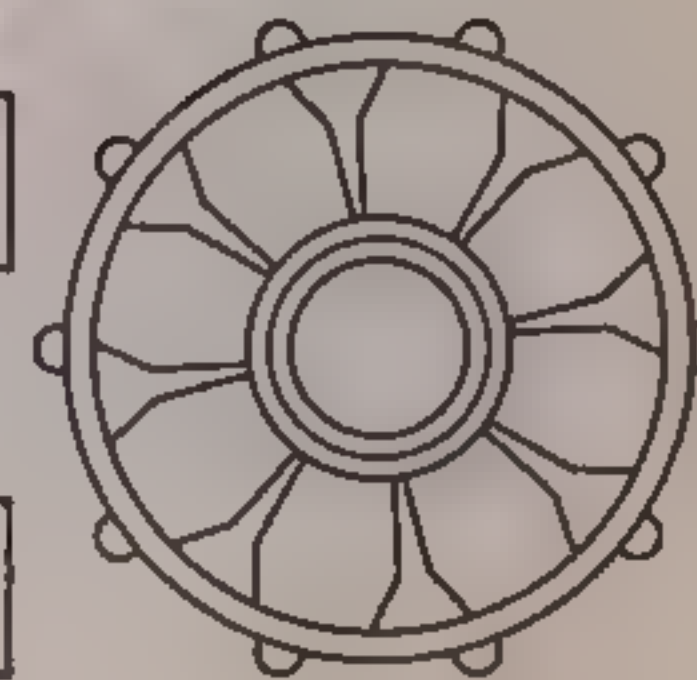
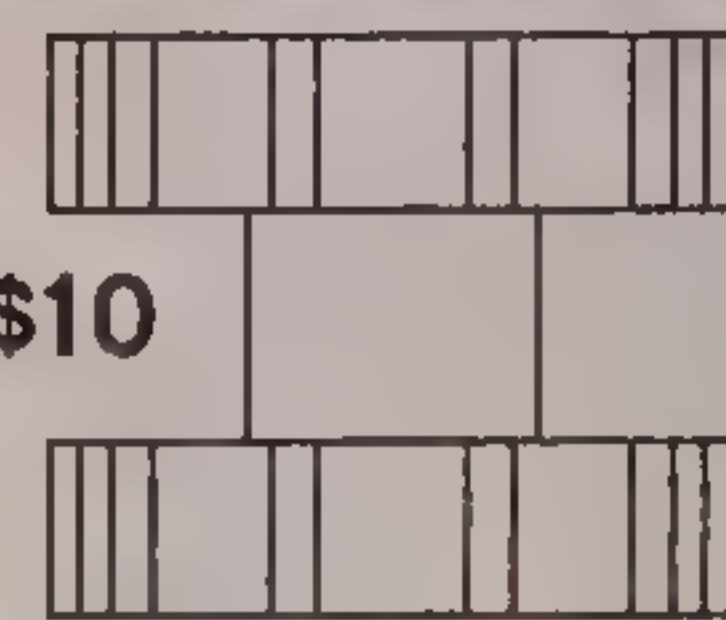
BAND
Z970003 (blue, 25 pcs)—\$10



LARGE TIRE AND HUB
Z970047 (pkg of 2 tires, 2 hubs)—\$10



CATERPILLAR HUB AND TREAD
Z970040 (pkg of 6, 4 hubs/2 treads)—\$10



SMALL HALF BEAM
Z970043 (gray, 100 pcs)—\$10



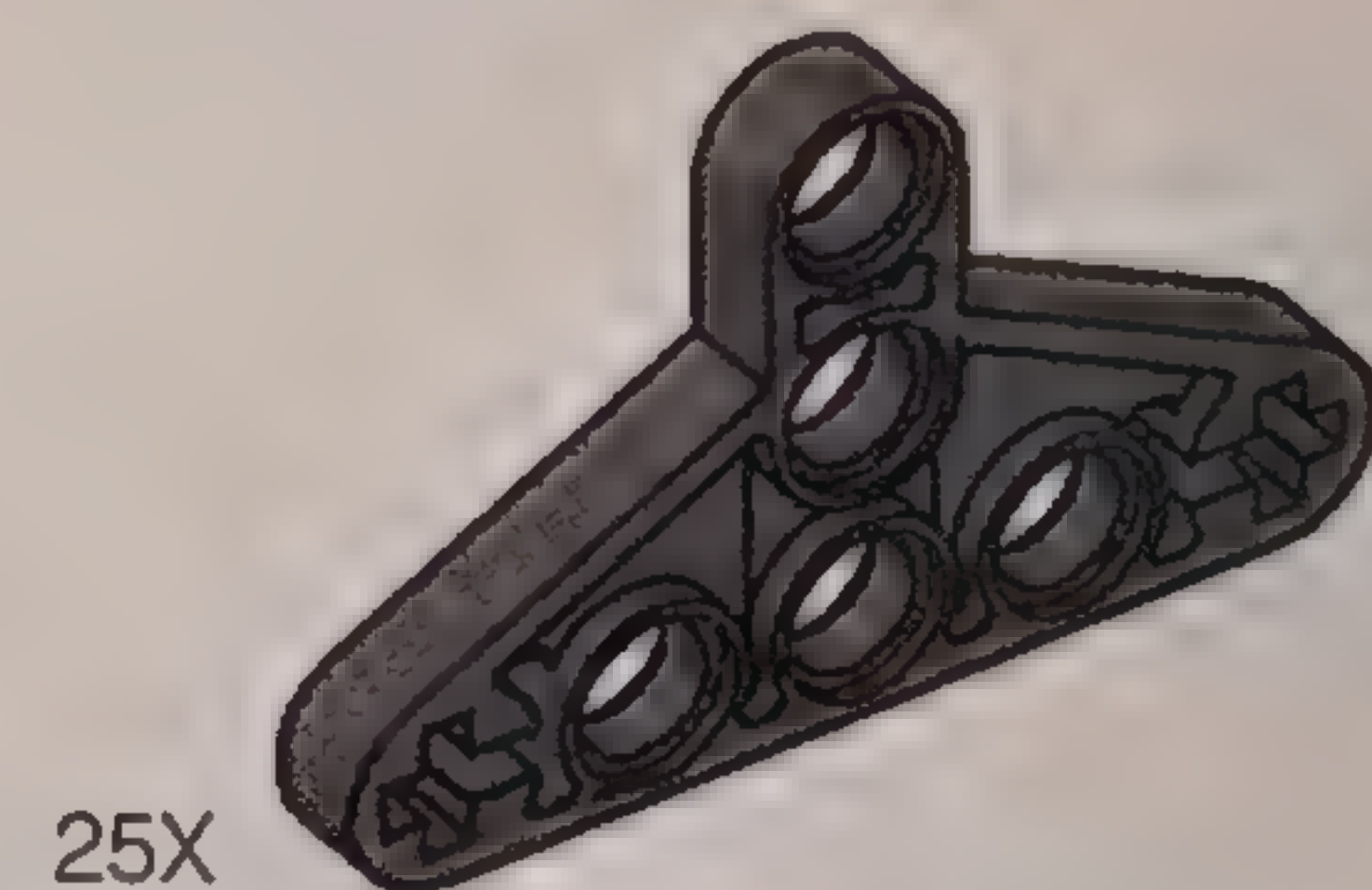
CAM WHEEL
Z991333—\$10



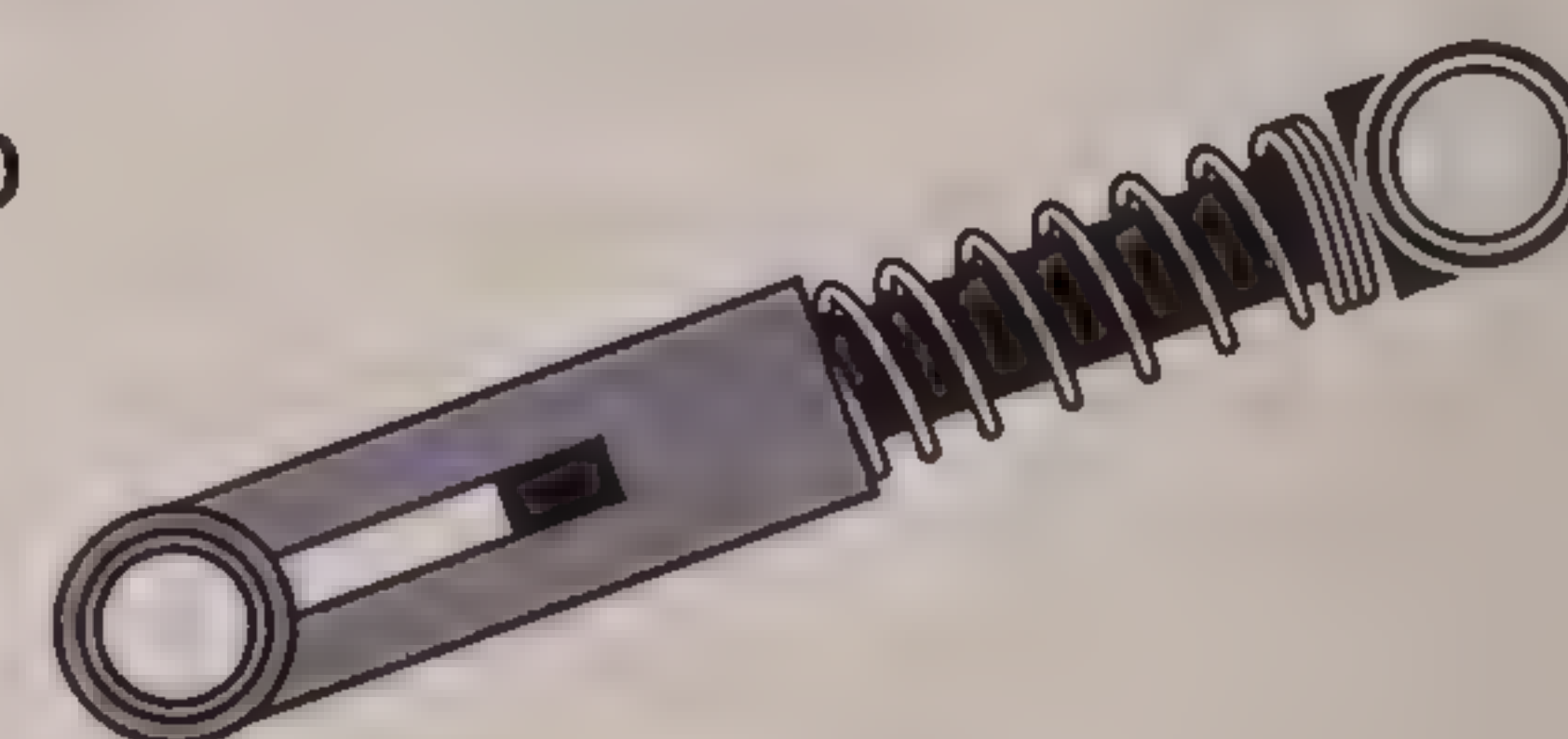
LEVER ARM
Z970039 (gray, 50 pcs)—\$10



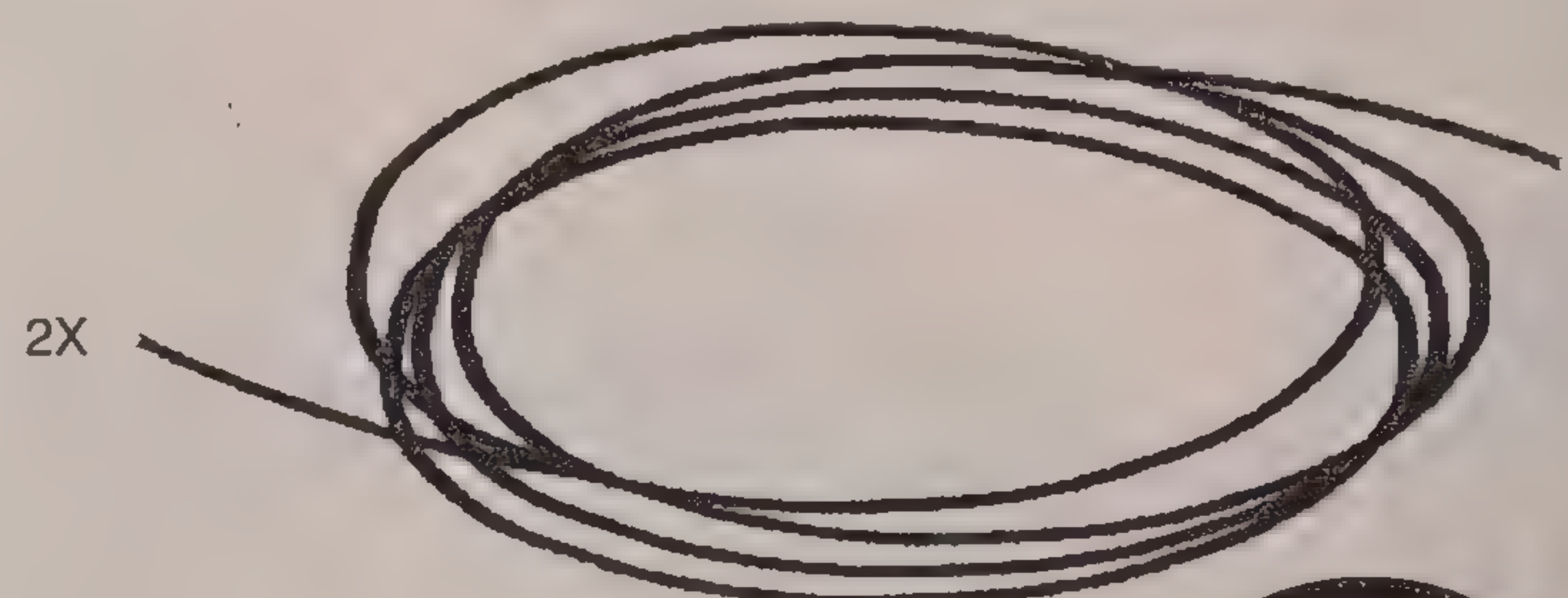
LIFT ARM
Z970030 (gray, 50 pcs)—\$10



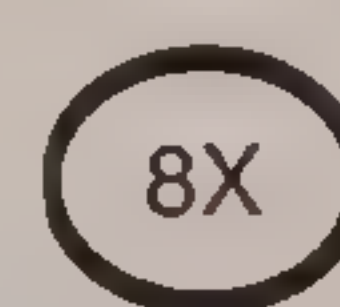
TECHNIC TRIANGLE
Z991332—\$10



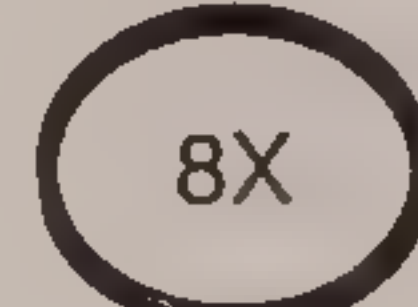
SHOCK ABSORBER
Z970028 (gray/black, 10 pcs)—\$10



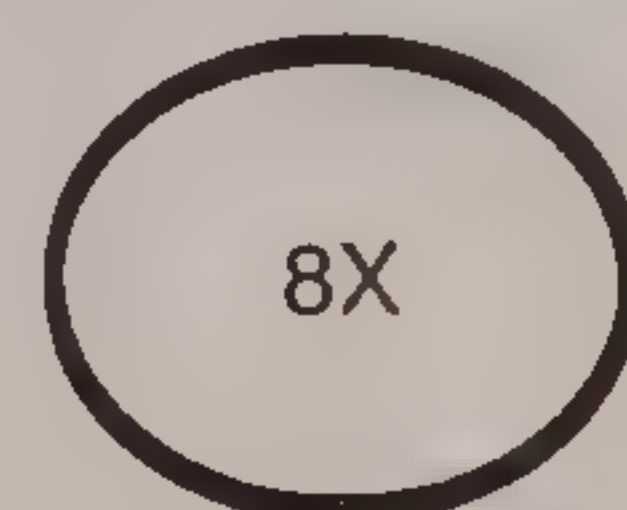
2X



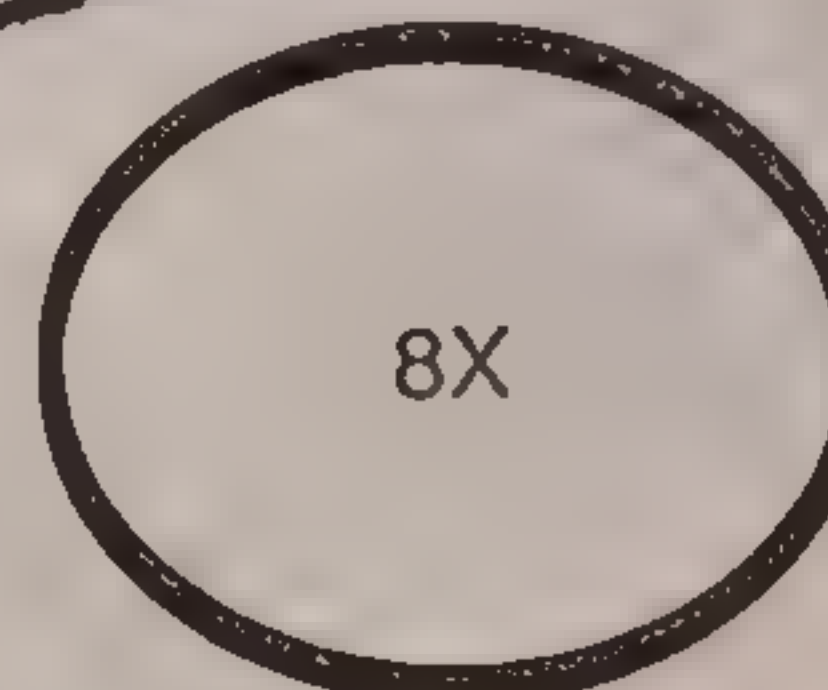
8X



8X



8X




8X


2X





RUBBER BANDS AND STRING
Z779940—\$10

100X 
1 X 2 PLATES WITH SLIDES
Z970600—\$10


100X 
SMALL PULLEYS
Z970601—\$10


100X 
BUSHINGS
Z970602—\$10


100X 
CONNECTOR PEGS
Z970603—\$10


100X 
FRICTION CONNECTOR PEGS
Z970604—\$10


100X 
LONG BLACK CONNECTOR PEGS
Z970605—\$10


100X 
CONNECTOR PEGS WITH AXLES
Z970606—\$10


100X 
CONNECTOR PEGS WITH KNOBS
Z970607—\$10


100X 
CONNECTOR PEGS 1-1/2
Z970608—\$10


100X 
2-STUD AXLES WITH GROOVES
Z970609—\$10


100X 
3-STUD AXLES
Z970610—\$10


50X 
4-STUD AXLES
Z970612—\$10


50X 
5-STUD AXLES
Z970613—\$10


50X 
6-STUD AXLES
Z970614—\$10

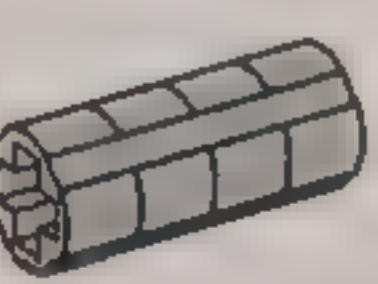
50X 
7-STUD AXLES
Z991329—\$10

50X 
8-STUD AXLES
Z970615—\$10


50X 
10-STUD AXLES
Z970616—\$10


50X 
12-STUD AXLES
Z970617—\$10

100X 
CROSS AXLES WITH KNOBS
Z970611—\$10

50X 
AXLE EXTENDERS
Z970618—\$10

50X 
CATCHES
Z970619—\$10

100X 
8-TOOTH SPUR GEARS
Z970620—\$10

50X 
12-TOOTH CONICAL WHEELS
Z970621—\$10

50X 
16-TOOTH GEARS
Z970622—\$10

25X 
20-TOOTH DOUBLE CONICAL WHEELS
Z970623—\$10


25X 
12-TOOTH BLACK DOUBLE CONICAL WHEELS
Z991327—\$10


50X 
24-TOOTH CROWN GEARS
Z970624—\$10


50X 
24-TOOTH GEARS
Z970625—\$10

10X 
TECHNIC CLUTCHES
Z970626—\$10


25X 
40-TOOTH GEARS
Z970627—\$10


50X 
CROSS BLOCKS
Z970628—\$10


50X 
CATCHES WITH CROSS HOLES
Z970629—\$10

10X 
PULLEYS
Z970630—\$10

50X 
BRICKS WITH CROSS HOLES
Z970631—\$10

50X 
1 X 2 BEAMS
Z970632—\$10

30X 
1 X 4 BEAMS
Z970633—\$10


30X 
1 X 6 BEAMS
Z970634—\$10


20X 
1 X 8 BEAMS
Z970635—\$10

20X 
1 X 10 BEAMS
Z970636—\$10

10X 
1 X 12 BEAMS
Z970637—\$10

10X 
1 X 16 BEAMS
Z970638—\$10

50X 
2 X 2 SKID PLATES
Z970639—\$10

20X 
TACHO WHEELS
Z970640—\$10

10X 
GEAR CASINGS
Z970641—\$10

Tools, Resources, and Parts



25X



25X

**O-RINGS AND
PULLEY WHEELS**

Z970660—\$10



25X

STEERING WHEELS

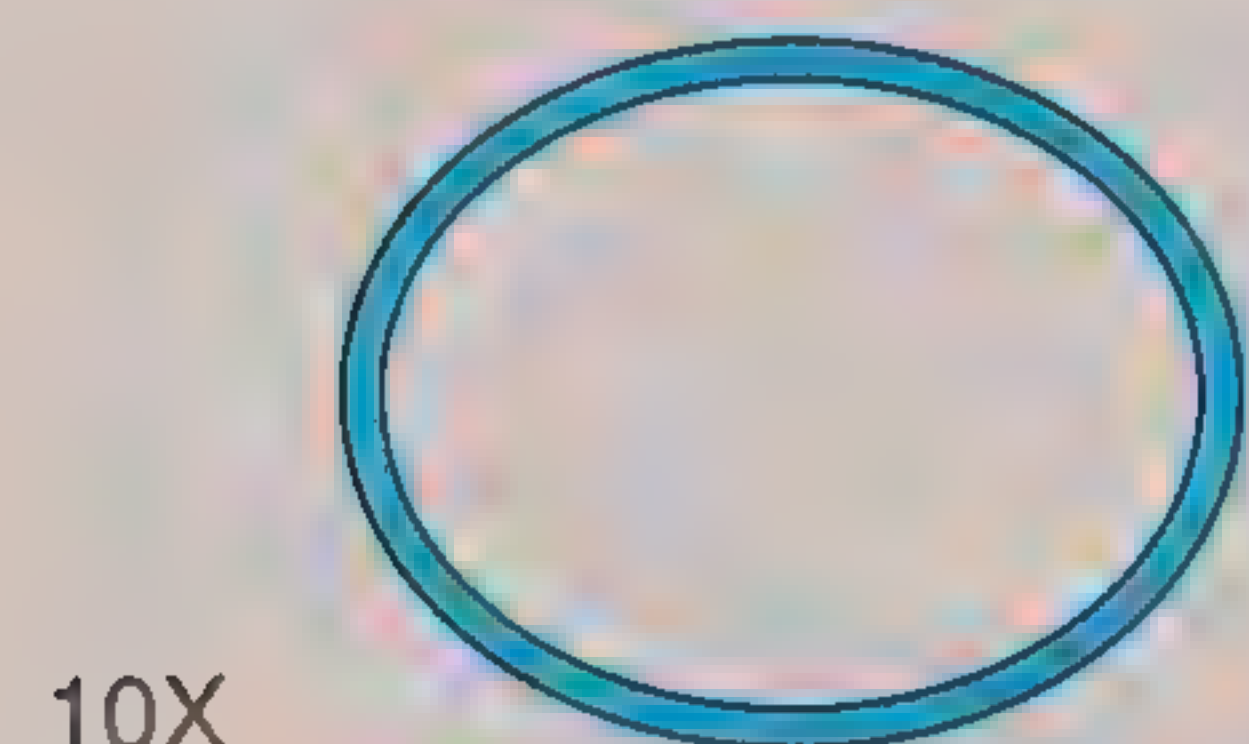
Z970662—\$10



10X

UNIVERSAL JOINTS

Z970665—\$10



10X

DUPLO® ESM BELTS

Z970682—\$10



10X

**GEAR AND
WORM RACKS**

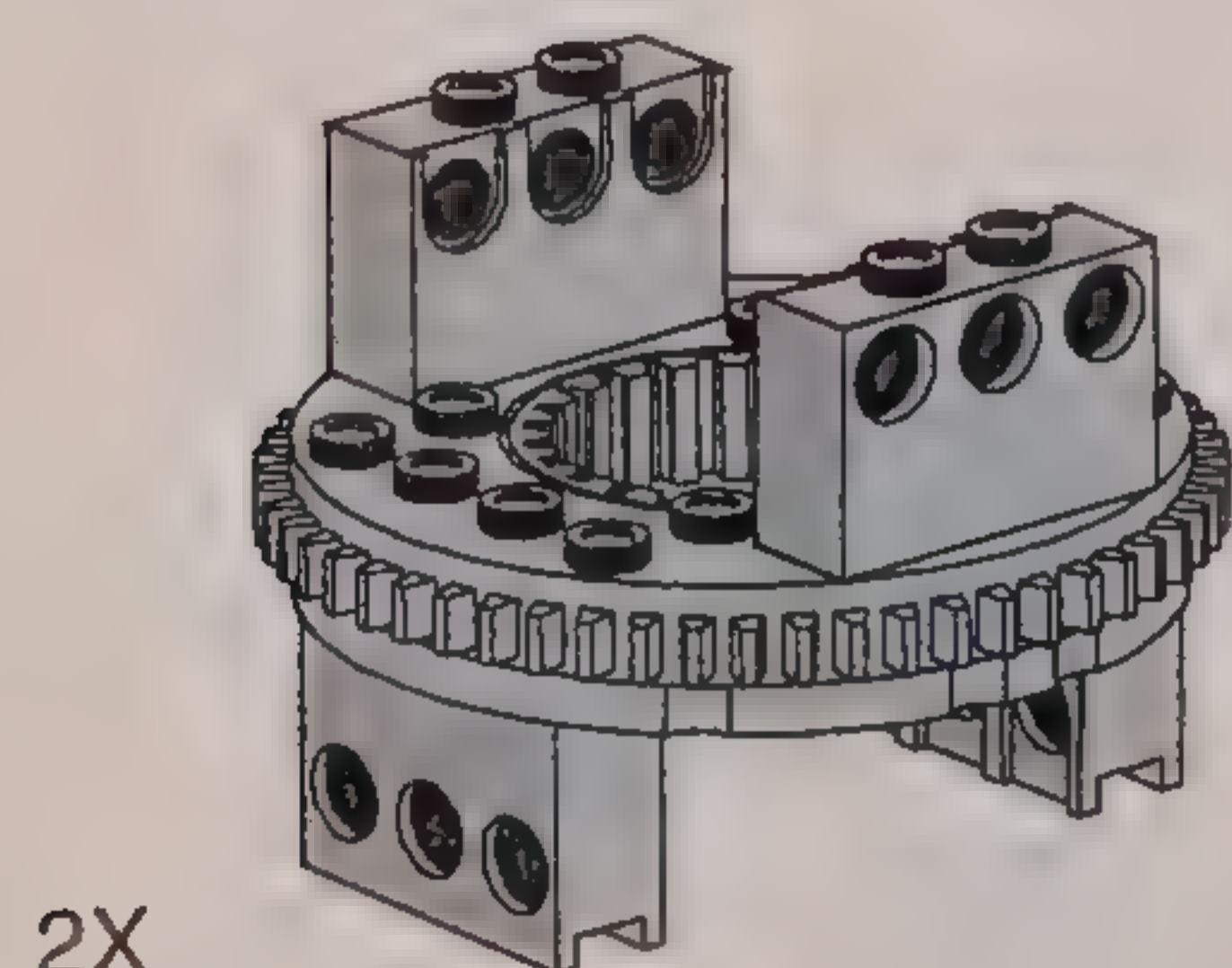
Z779854—\$10



2X

NEW TURNTABLES

Z991330—\$12



2X

LARGE TURNTABLES

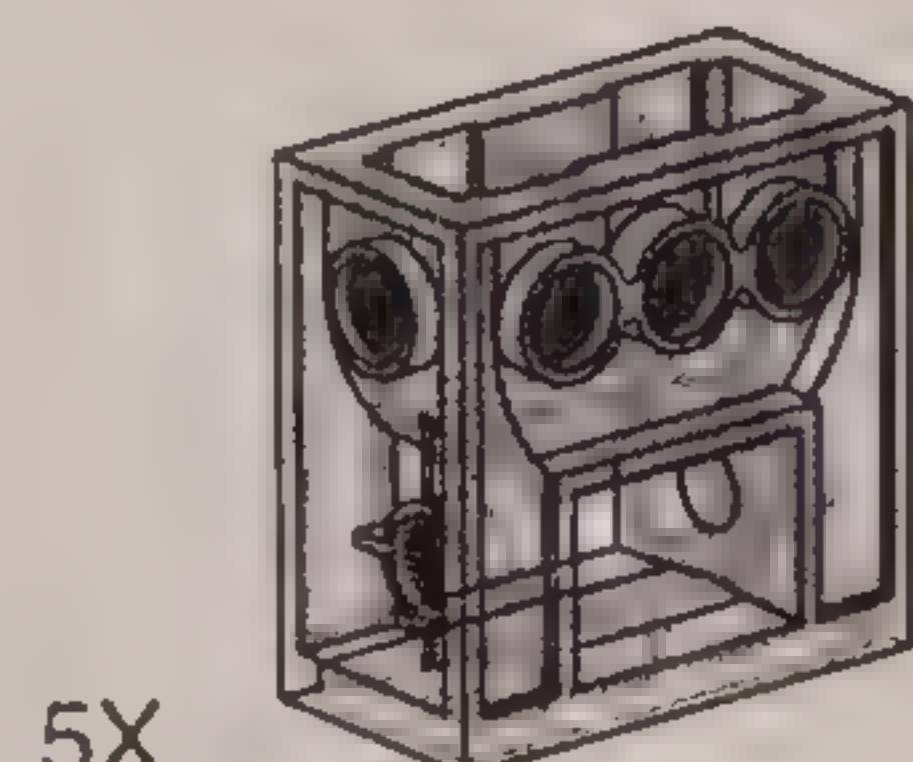
Z779876—\$12



2X

WEIGHT ELEMENTS

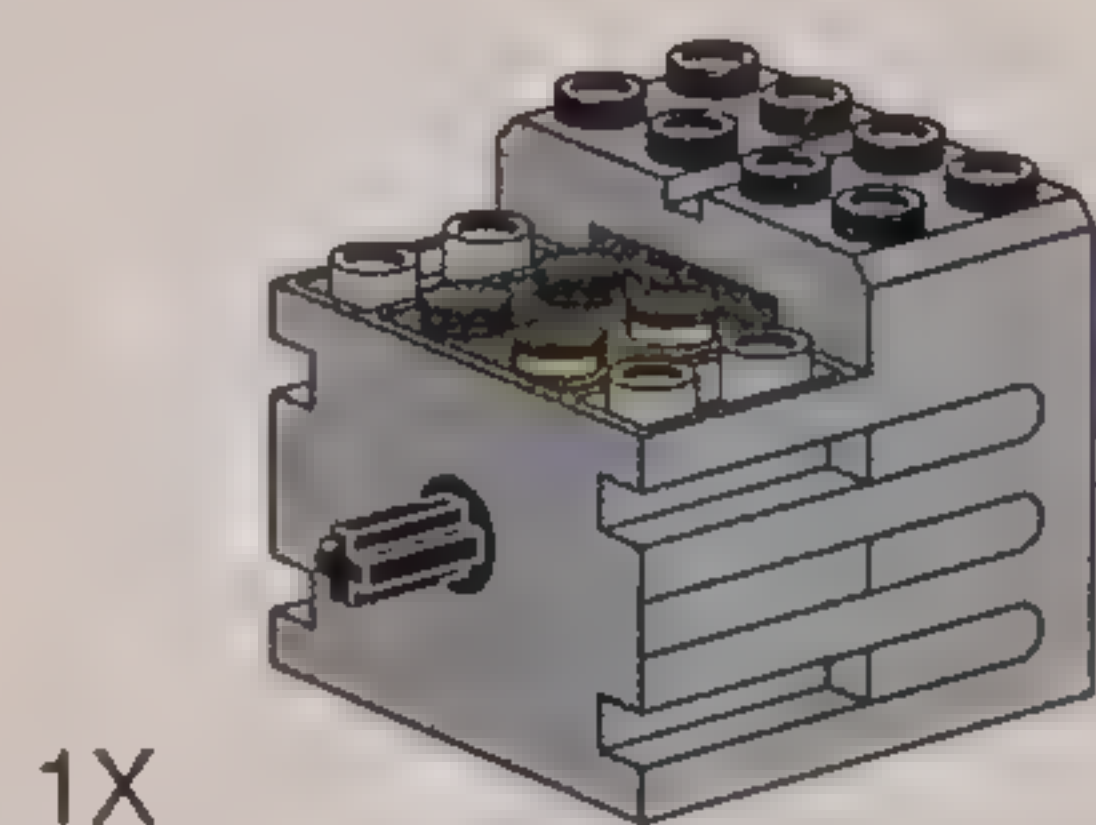
Z779936—\$10



5X

GEAR BLOCKS

Z970646—\$10

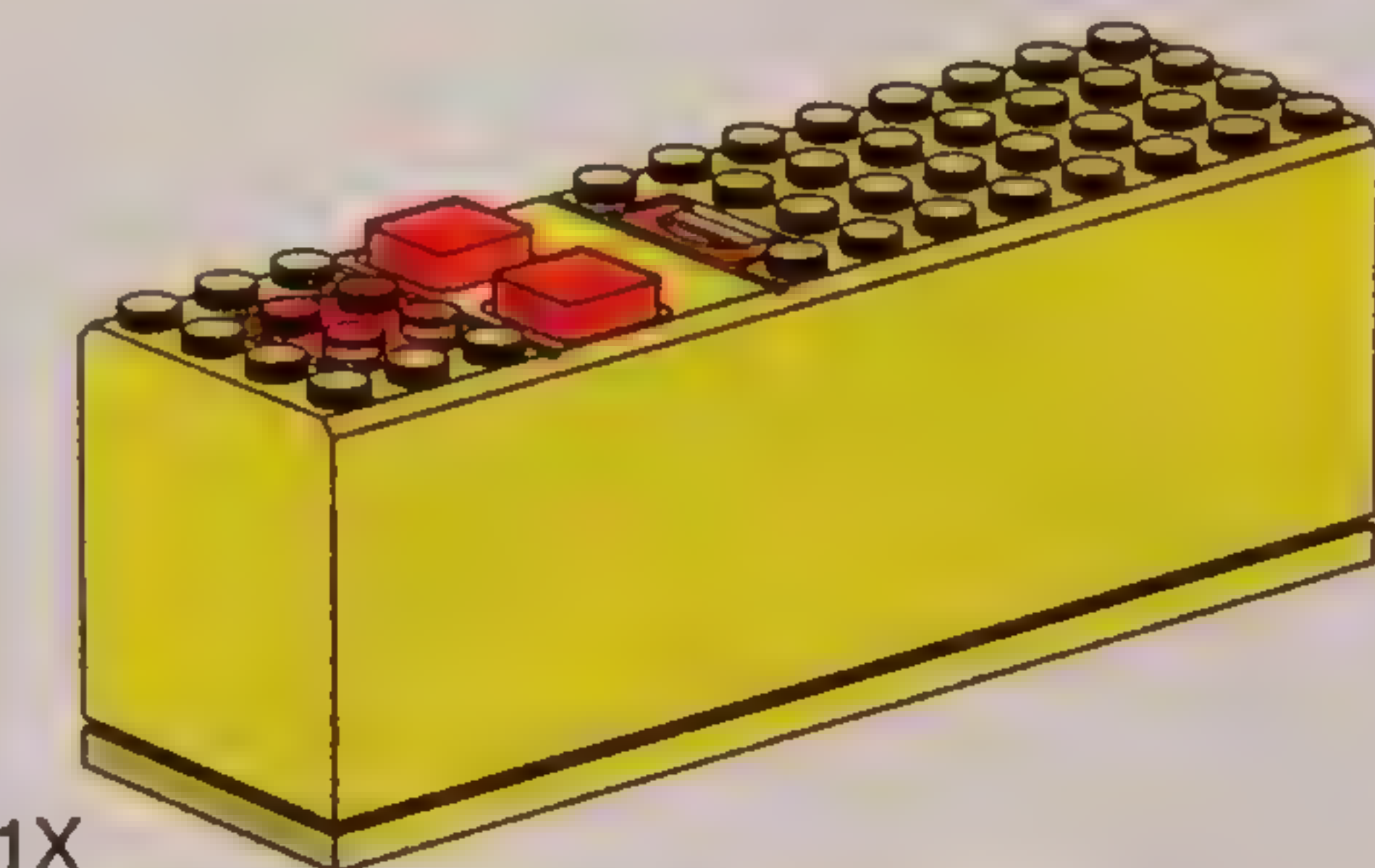


1X

**9-VOLT MOTOR WITH
GEAR REDUCTION**

Z775225—\$17.95

Motors may vary in color.

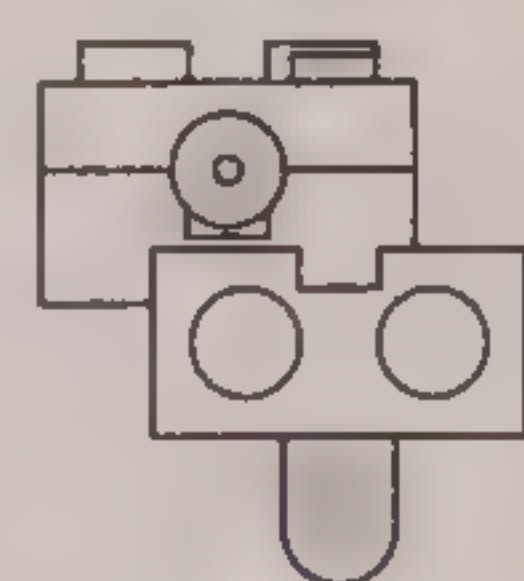


1X

BATTERY BOX WITH SWITCH

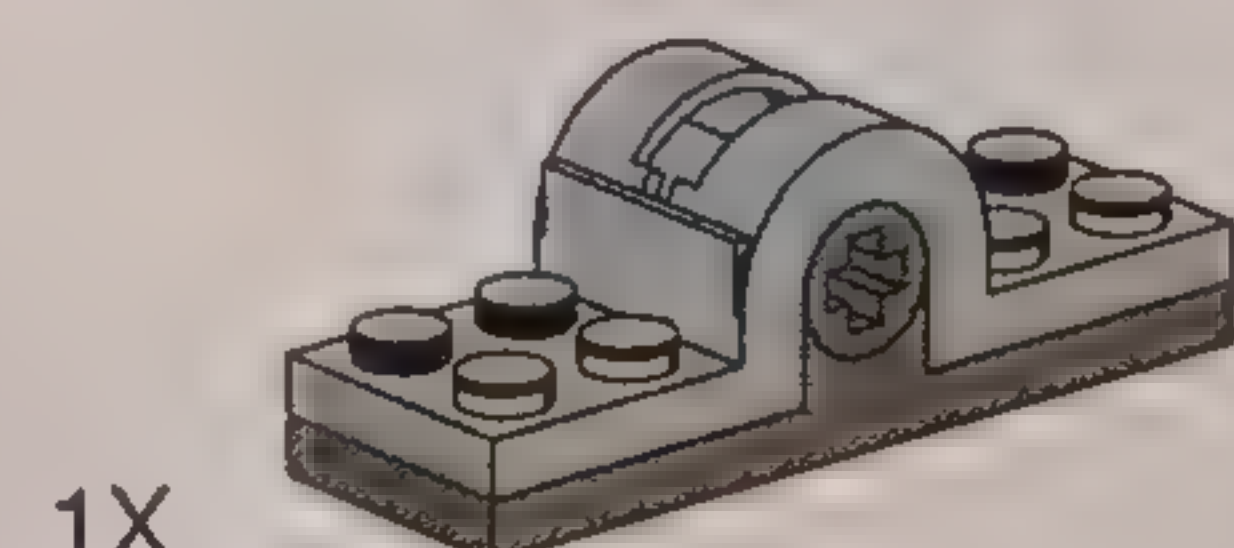
Z779831—\$26

Battery Boxes may vary in color.



1 X 2 LAMP BRICK 9V

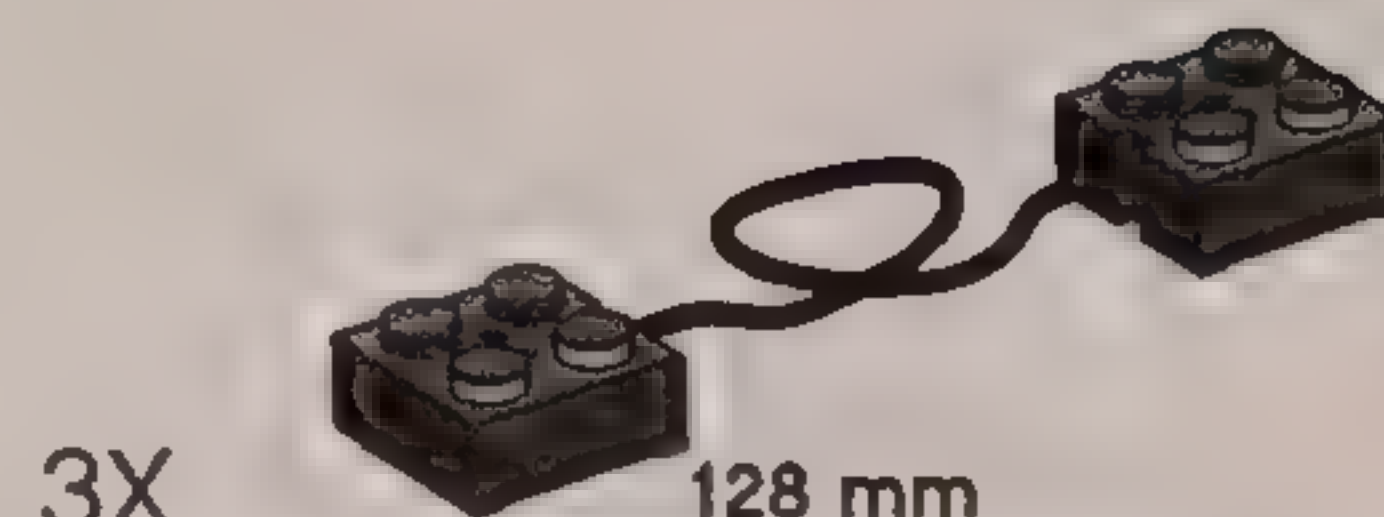
Z970005 (white, 2 pcs)—\$10



1X

POLE REVERSING SWITCH

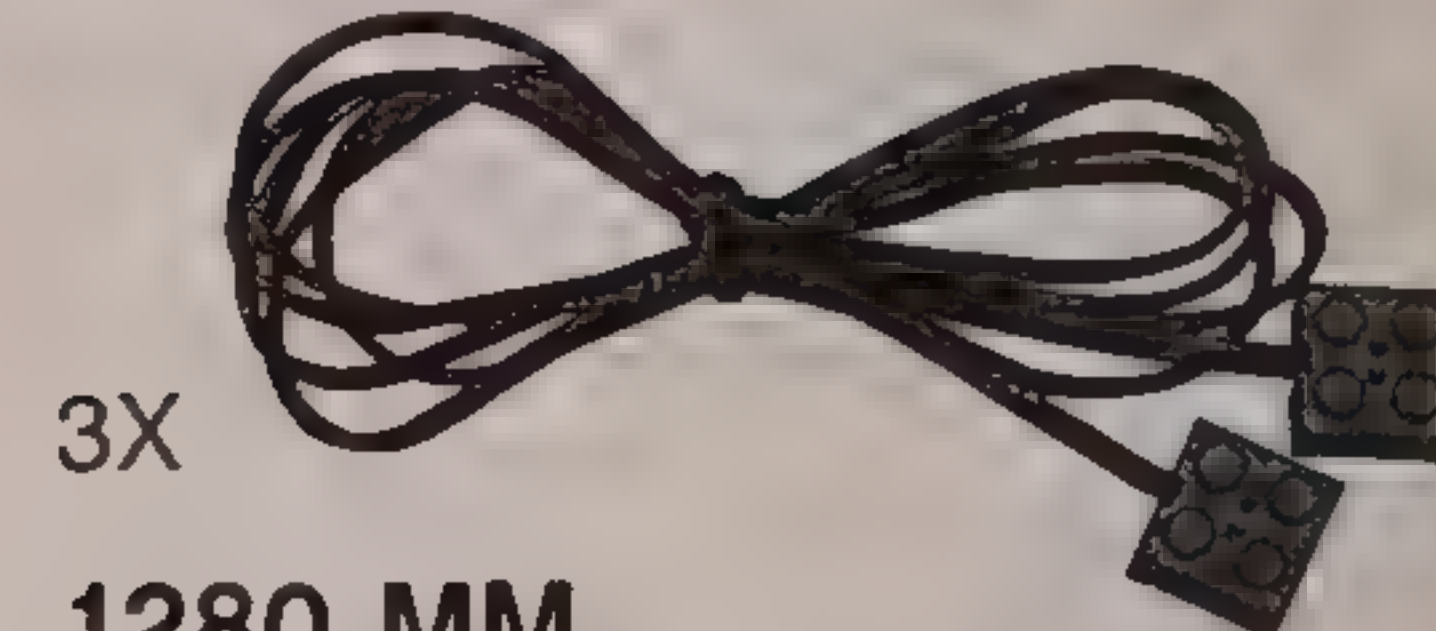
Z970653—\$10



3X

128 MM CONNECTING LEADS

Z970041—\$10



3X

**1280 MM
CONNECTING LEADS**

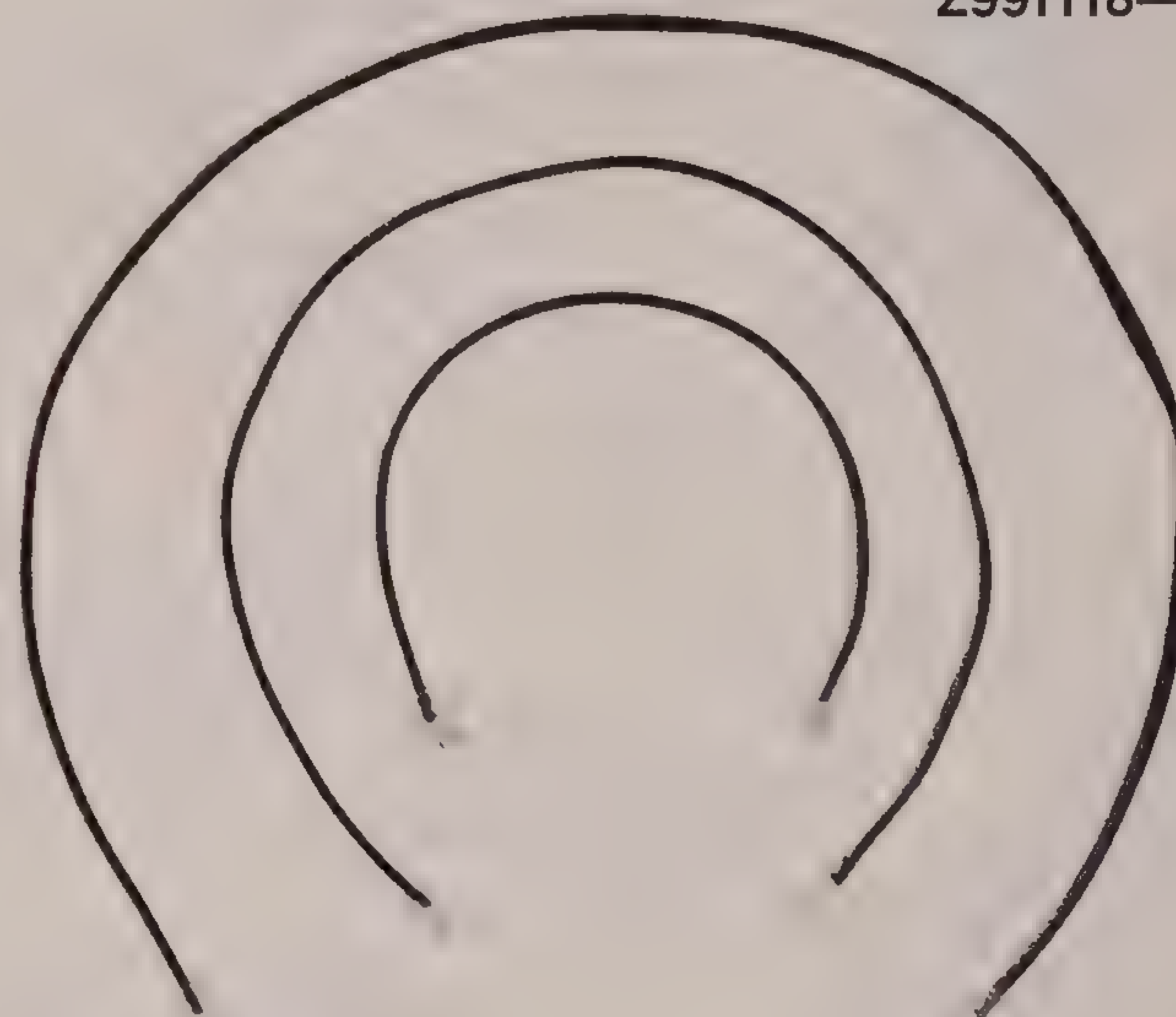
Z970115—\$10



2X

3M CONNECTING LEADS

Z991118—\$10



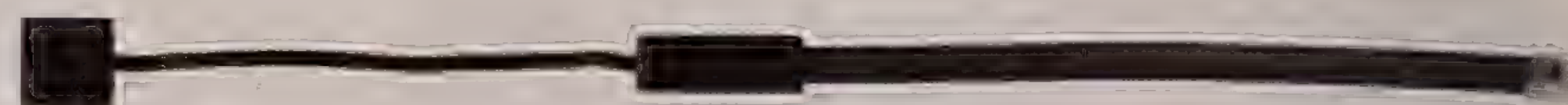
NXT CONNECTOR CABLES

Available in three lengths, these connector cables were designed specifically for use with the *NXT Brick*. Already included in the LEGO® MINDSTORMS® *Education Base Set* is one .2M cable, two .5M cables, and four .35M cables. Use the cables below to supplement your cable selection.

Z991300 .2M (approx. 7.9") NXT Connector Cable (pkg of 3)—\$10

Z991301 .5M (approx. 19.7") NXT Connector Cable (pkg of 3)—\$10

Z991302 .35M (approx. 13.8") NXT Connector Cable (pkg of 3)—\$10



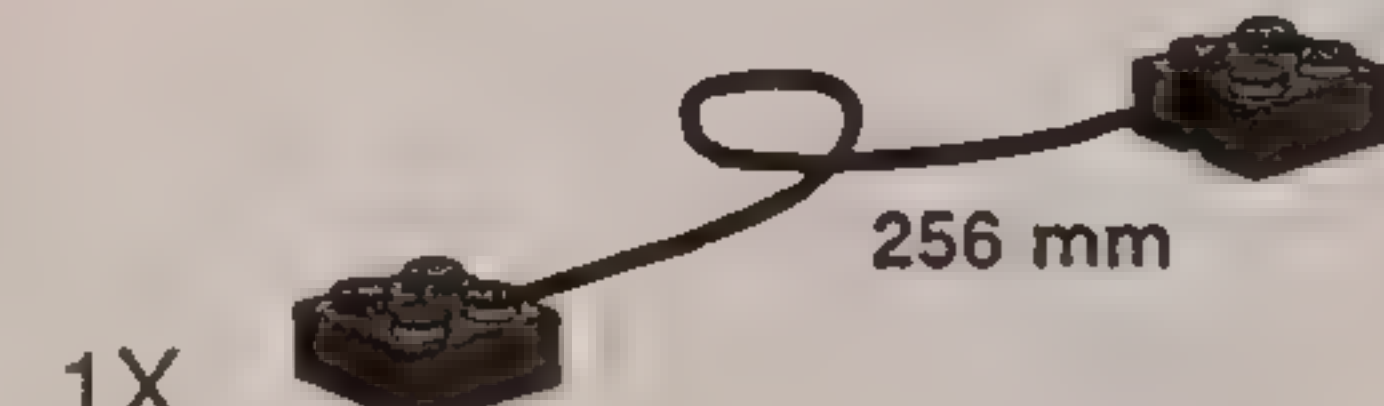
CONVERSION CABLE

With this cable, you can use your existing *RCX* sensors and motors with the *NXT Brick*! Three of these cables are also included in the 979797 LEGO® MINDSTORMS® *Education Base Set*.

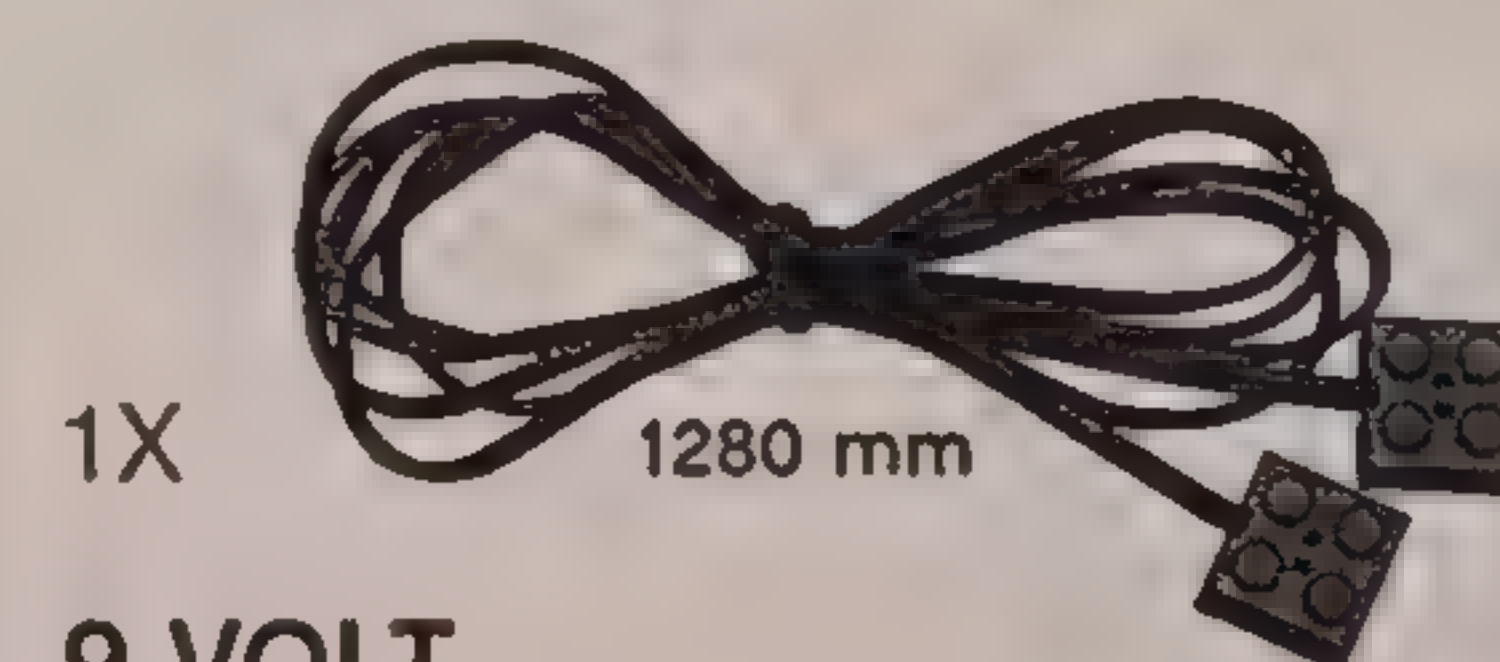
Z770323 NXT Conversion Cable (pkg of 3)—\$10



1X



1X



1X

**9-VOLT
CONNECTING LEADS**

Z970654—\$10



25X

BOBBINS

Z970643—\$10

100X

CHAIN LINKS

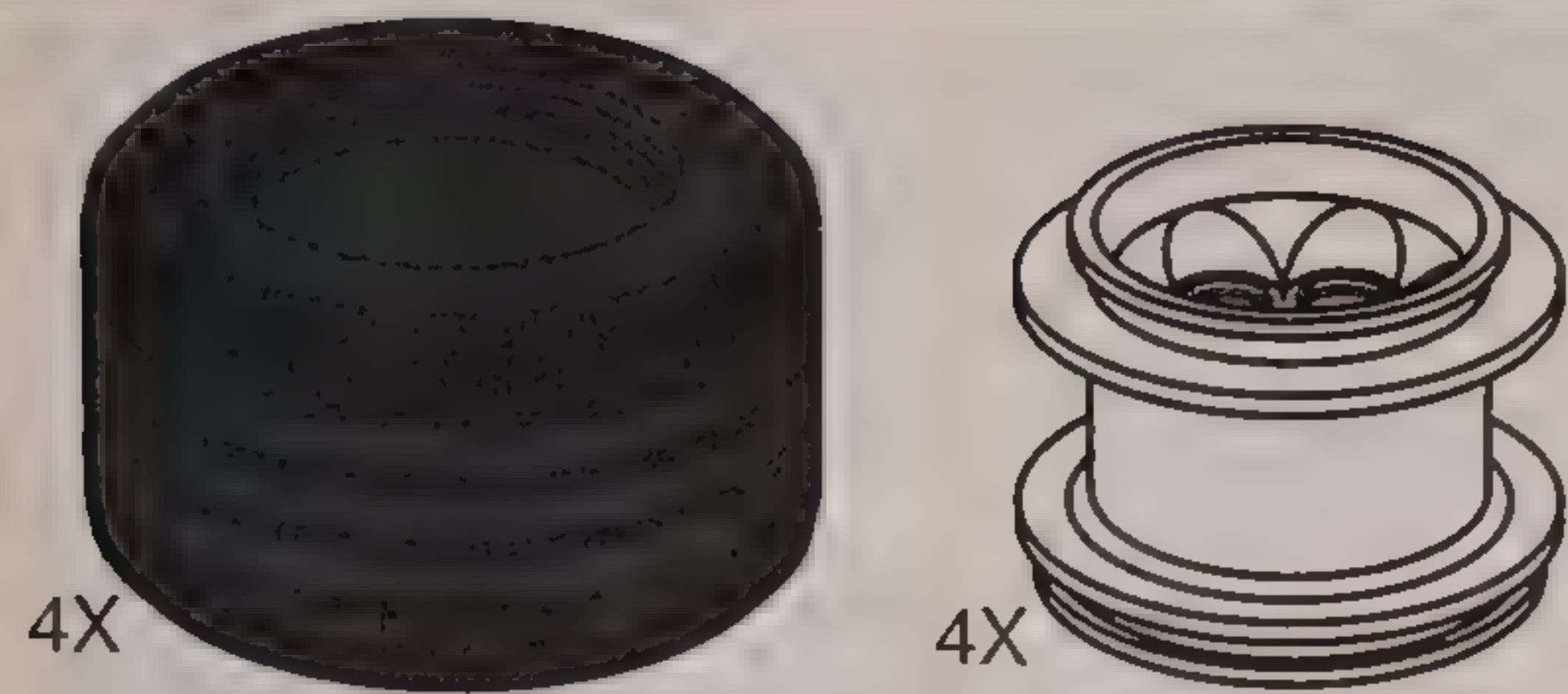
Z970645—\$10



36X

CONVEYOR BELT LINKS

Z779938—\$10



4X
LARGE LAWN TIRE AND HUB
Z970111—\$10



4X
SMALL LAWN TIRE AND HUB
Z970112—\$10



2X

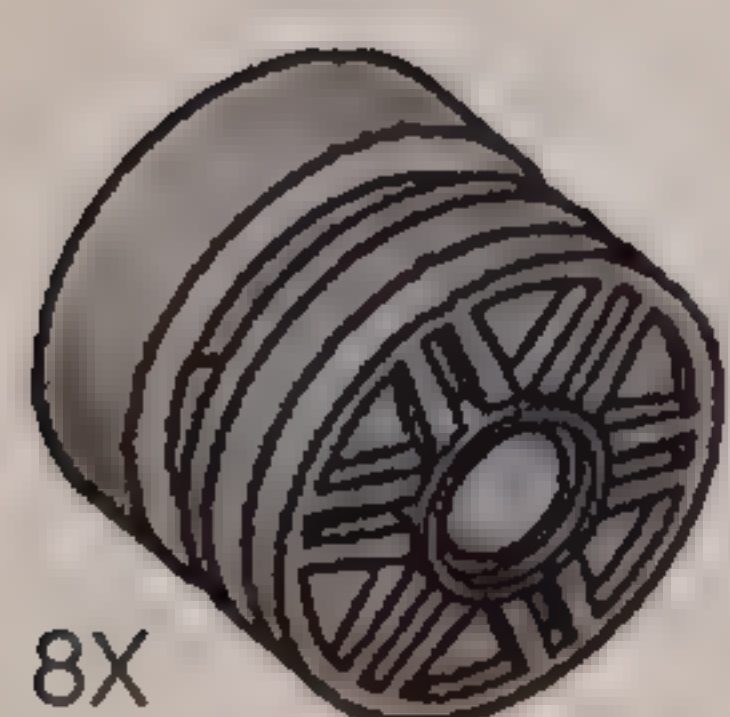


4X

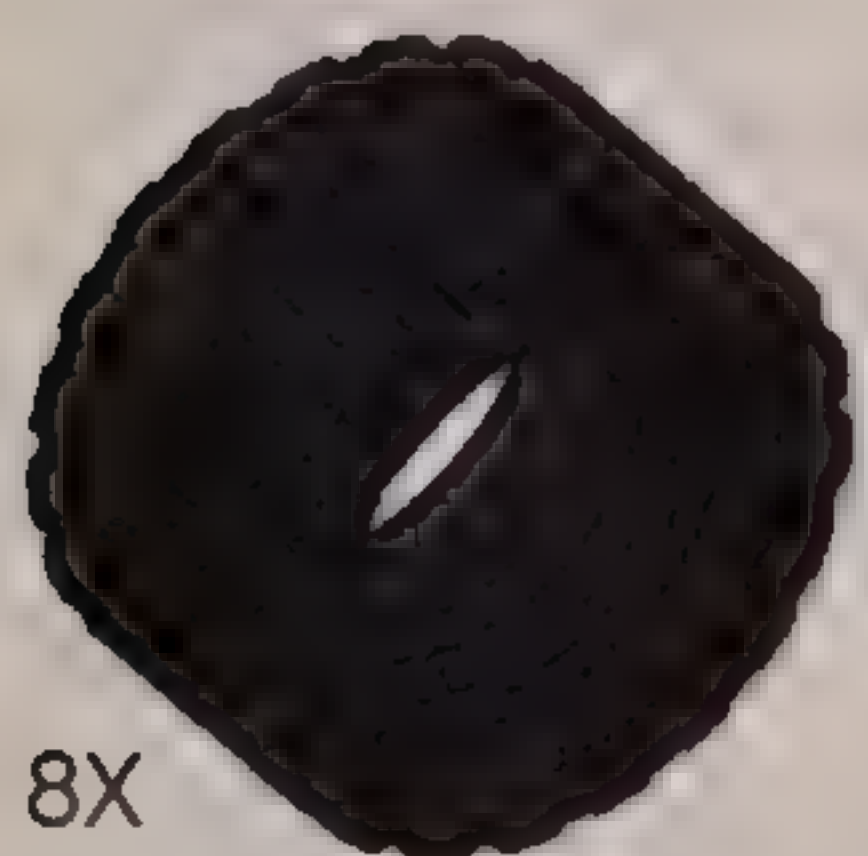


2X

TIRE PACK
Z970113—\$10



8X

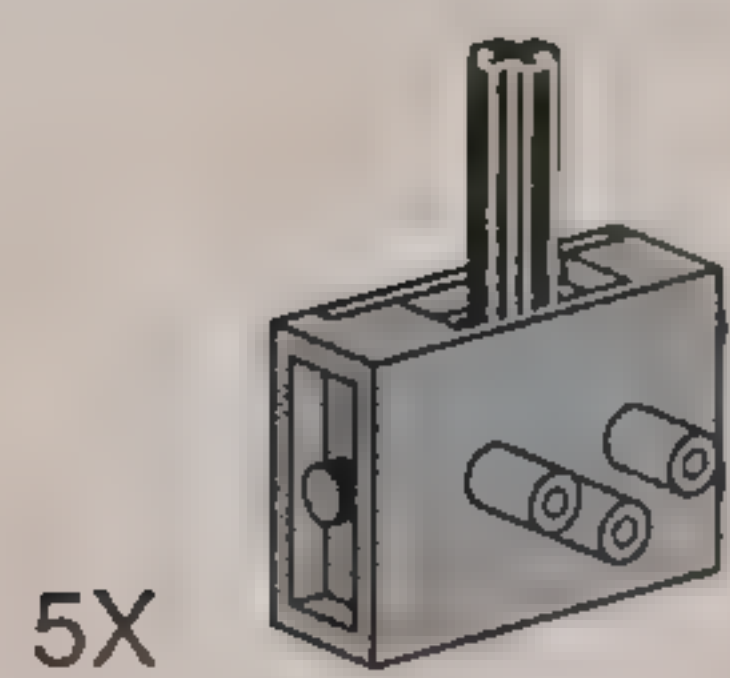


8X

SMALL WIDE TIRE AND HUB
Z991331—\$10

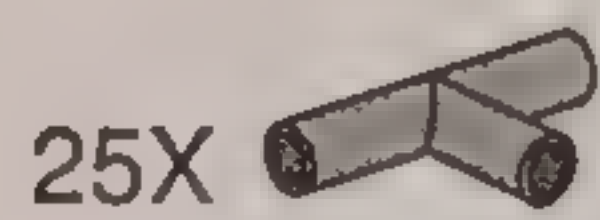


TRACK AND SPROCKETS PACK
Z991369—\$12



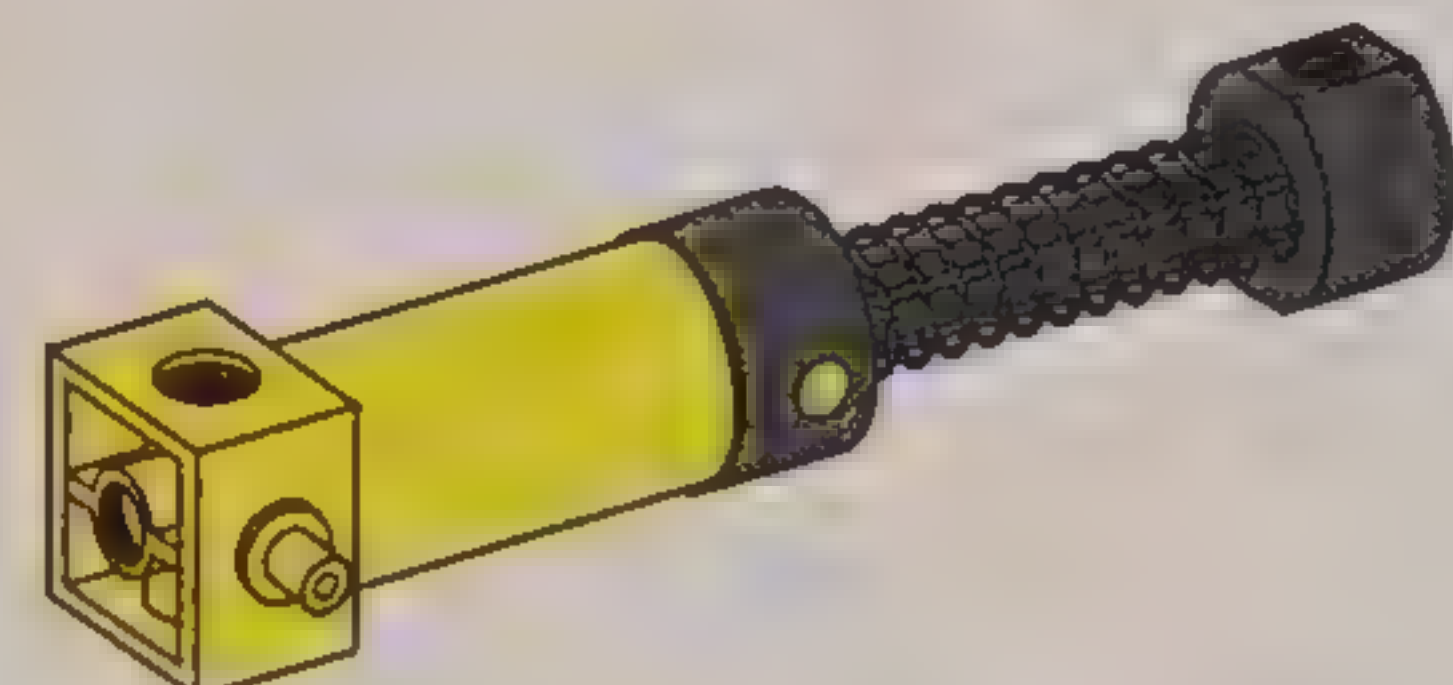
5X

PNEUMATIC SWITCH
Z970663—\$10



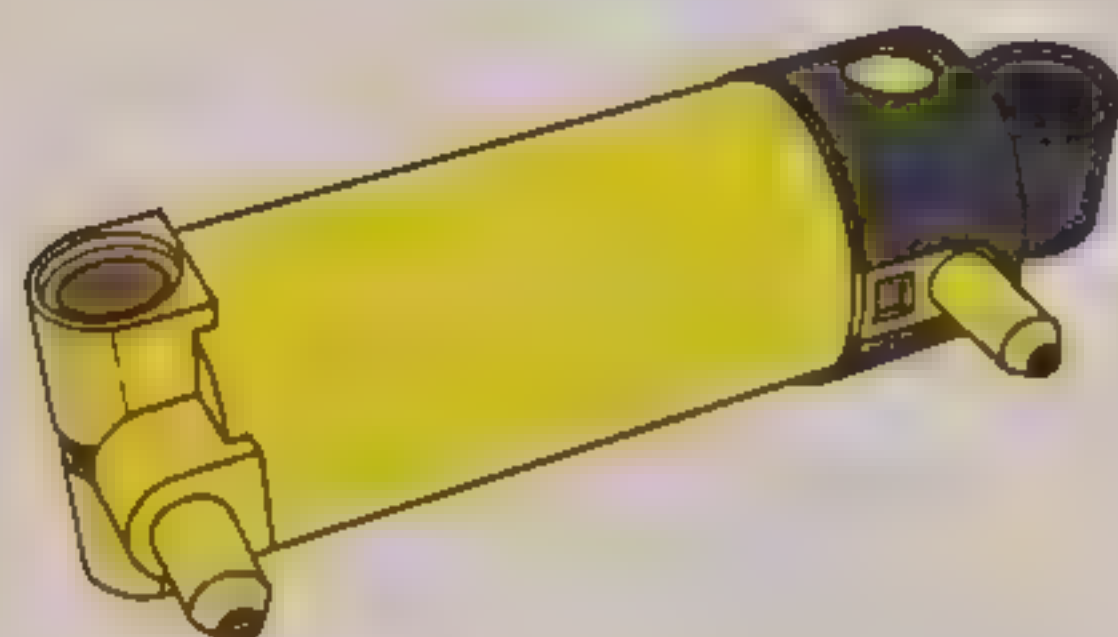
25X

PNEUMATIC T-PIECES
Z970110—\$10



2X

PNEUMATIC HAND PUMP
Z970117—\$10



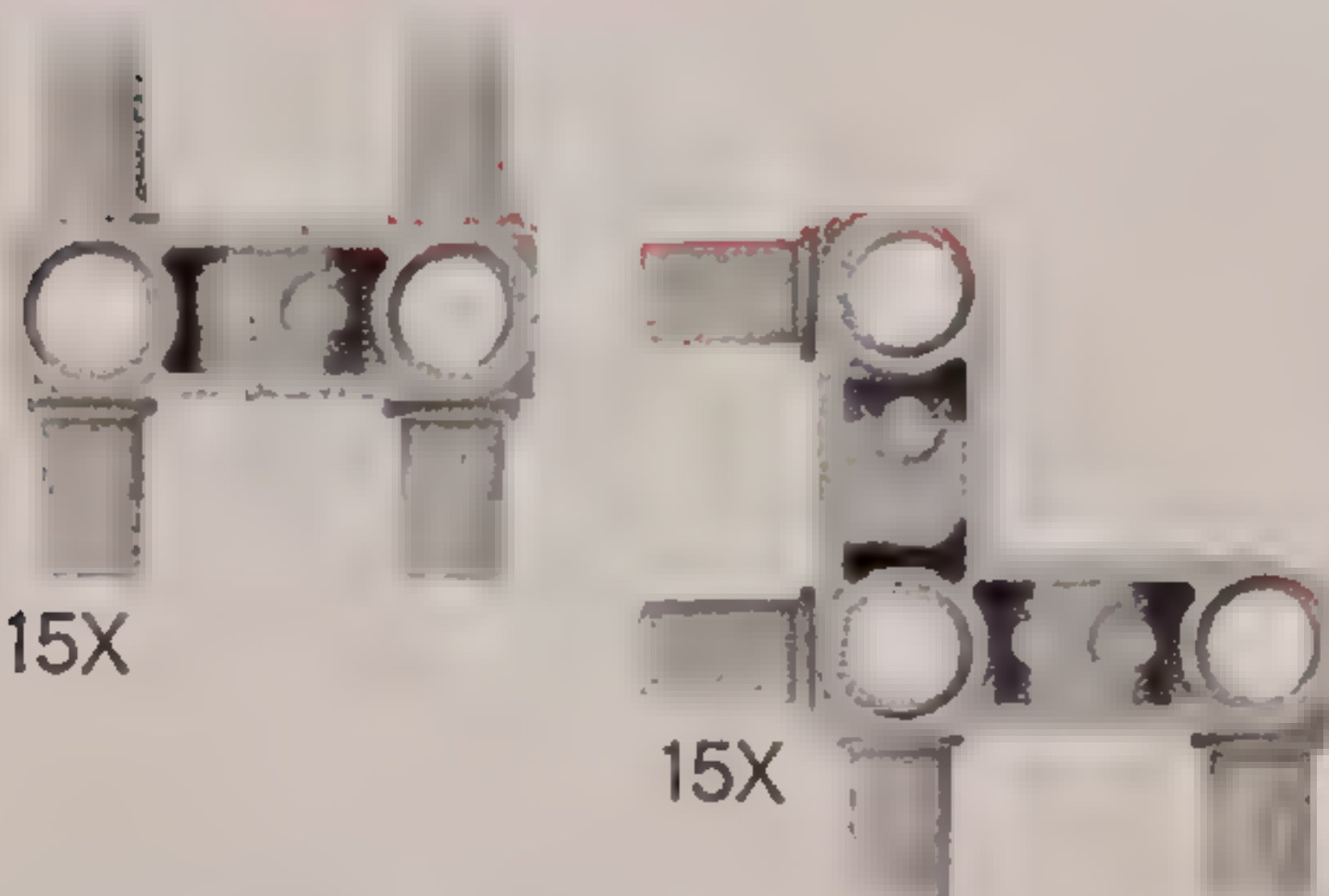
2X

PNEUMATIC CYLINDER
Z970118—\$10



1X

PNEUMATIC TUBING
Z970119—\$10
LIMITED QUANTITY



15X

15X

TECHNIC BEAMS WITH SNAPS
Z991404—\$12



5X

5X

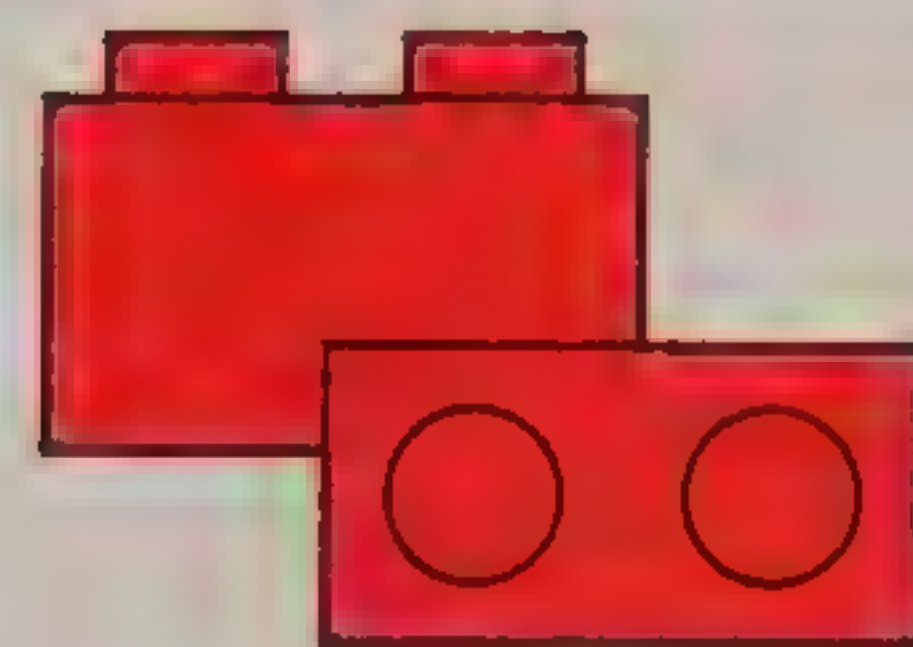
5X

5X

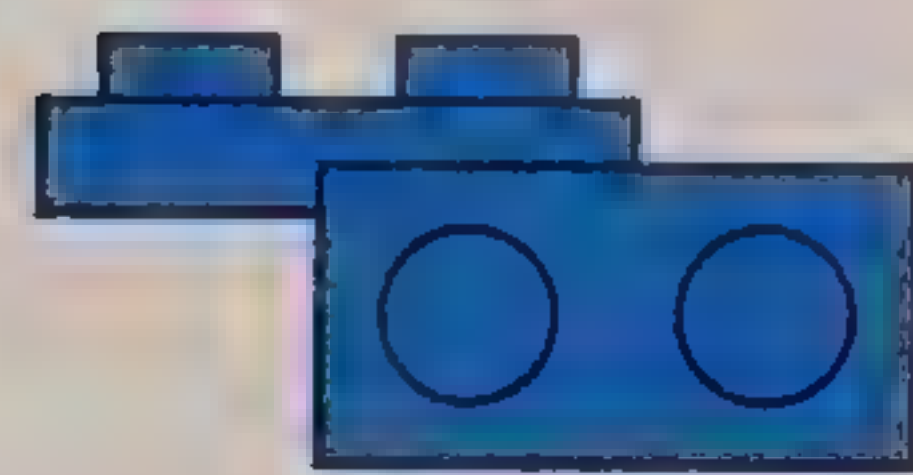
5X

5X

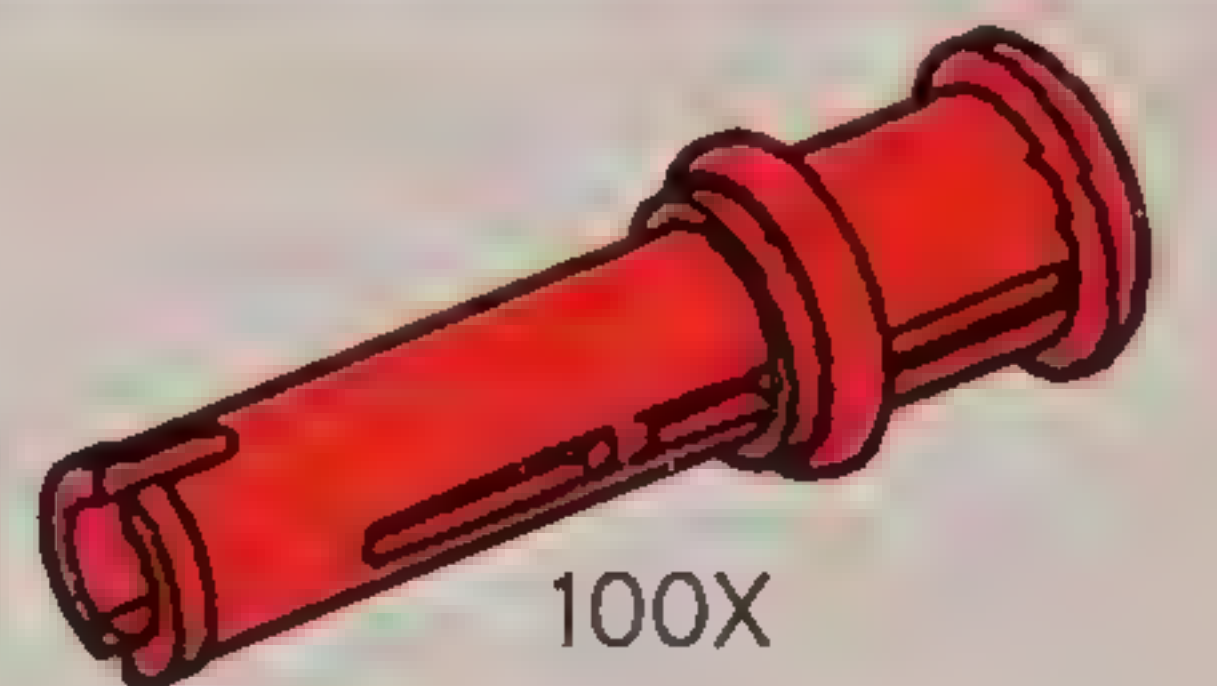
TECHNIC CROSSBLOCKS
Z991405—\$12



1 X 2 BRICKS
Z970008 (red, 50 pcs)—\$10

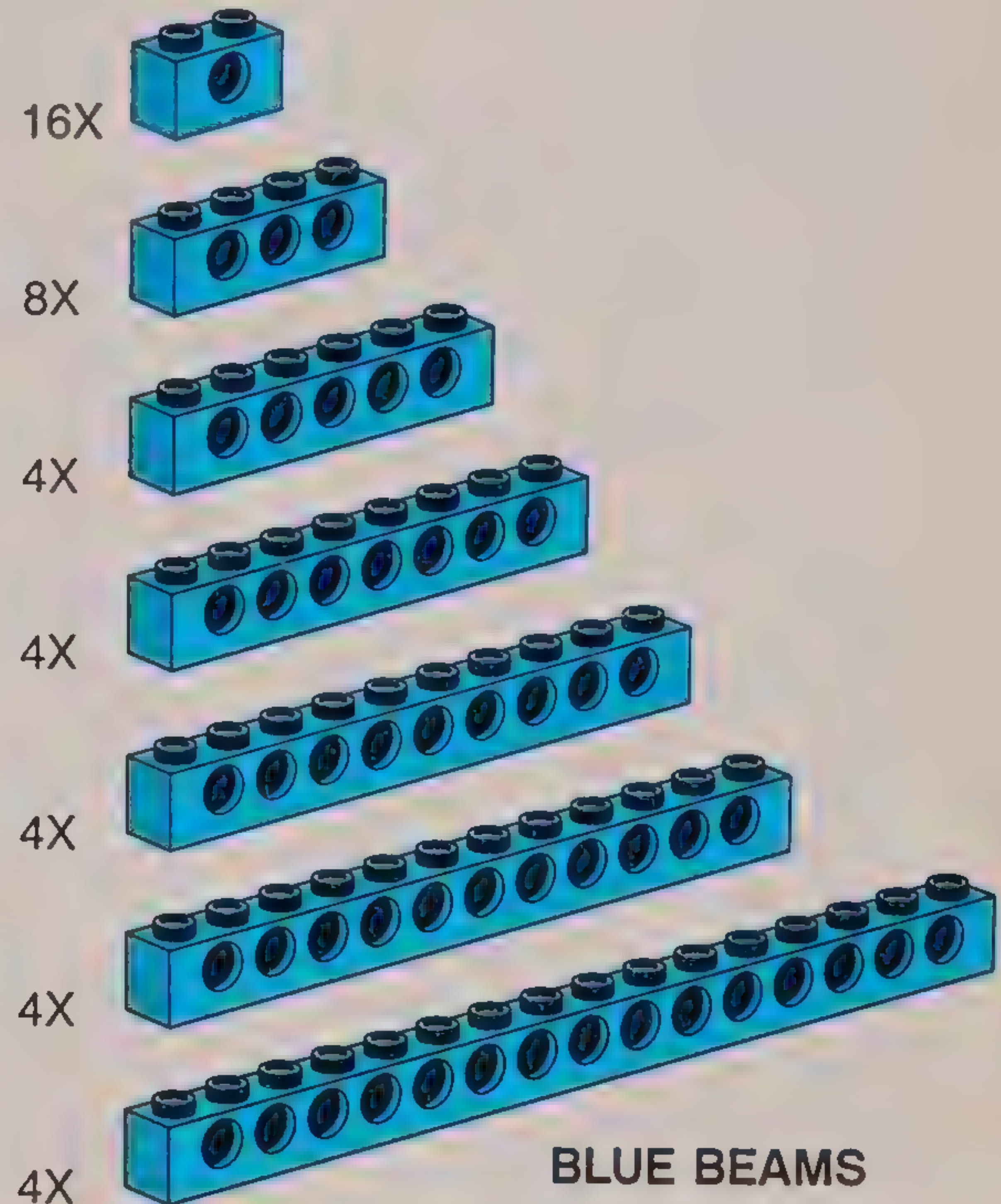


1 X 2 PLATES
Z970009 (blue, 100 pcs)—\$10



100X

CONNECTOR PEG WITH AXLE
Z991337—\$10



16X

8X

4X

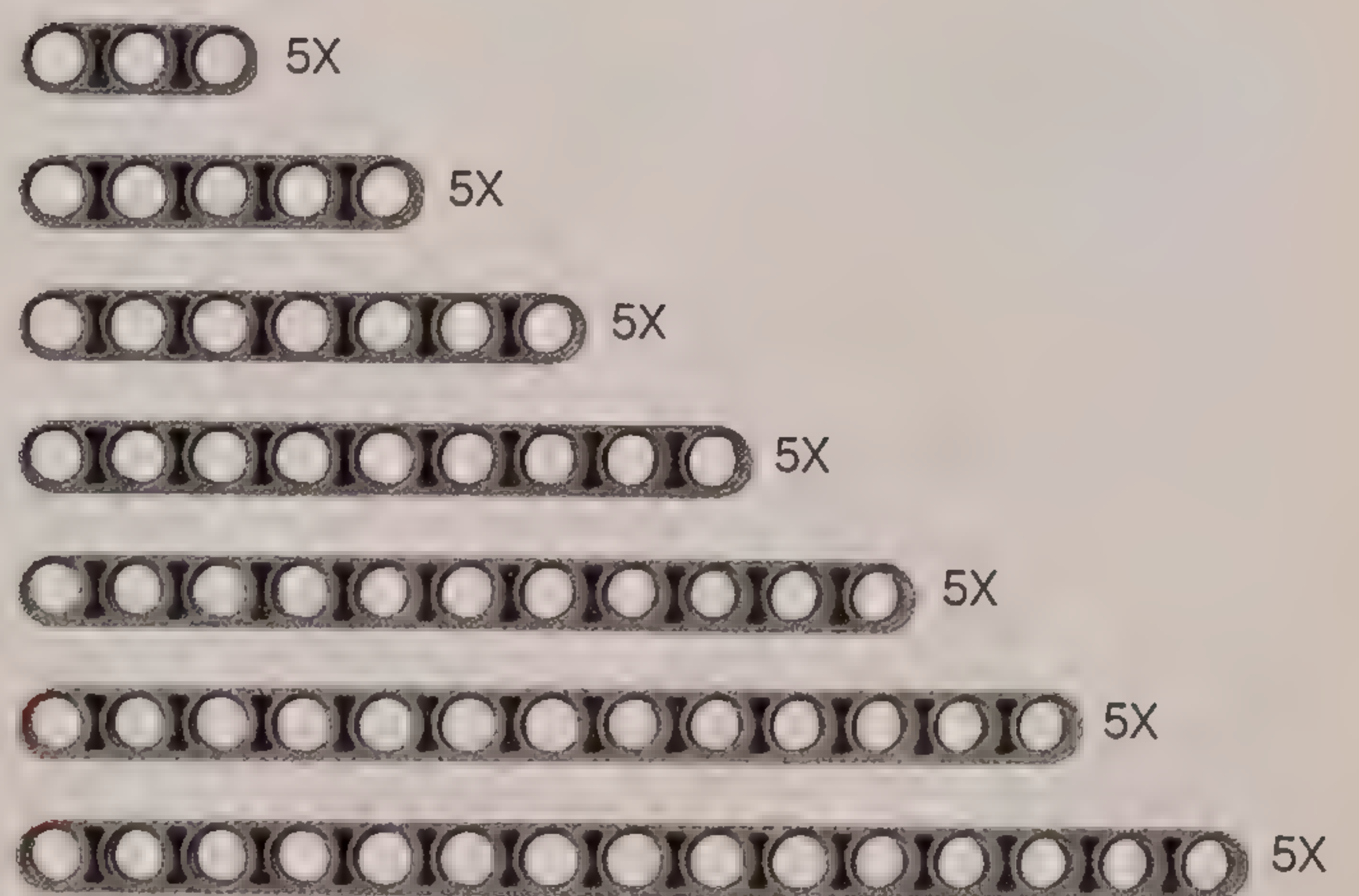
4X

4X

4X

4X

BLUE BEAMS
Z779928—\$11



5X

5X

5X

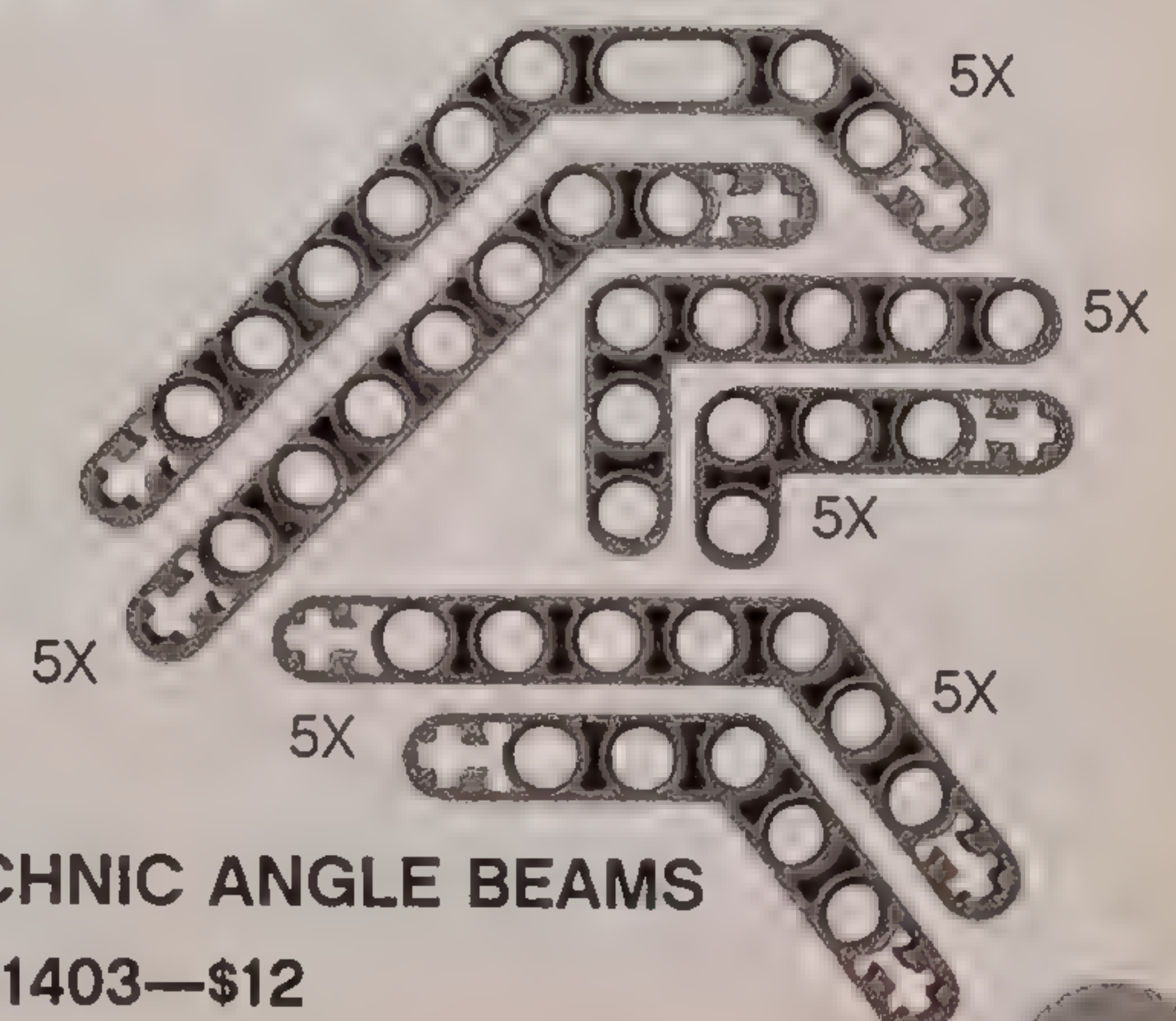
5X

5X

5X

5X

STUDLESS TECHNIC BEAMS
Z991402—\$12



5X

5X

5X

5X

5X

5X

TECHNIC ANGLE BEAMS
Z991403—\$12

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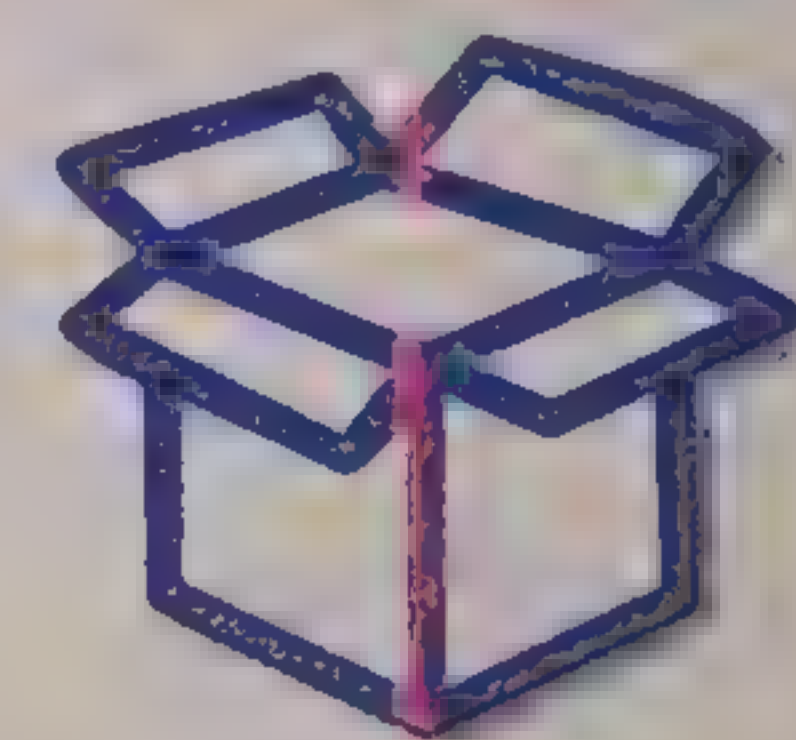
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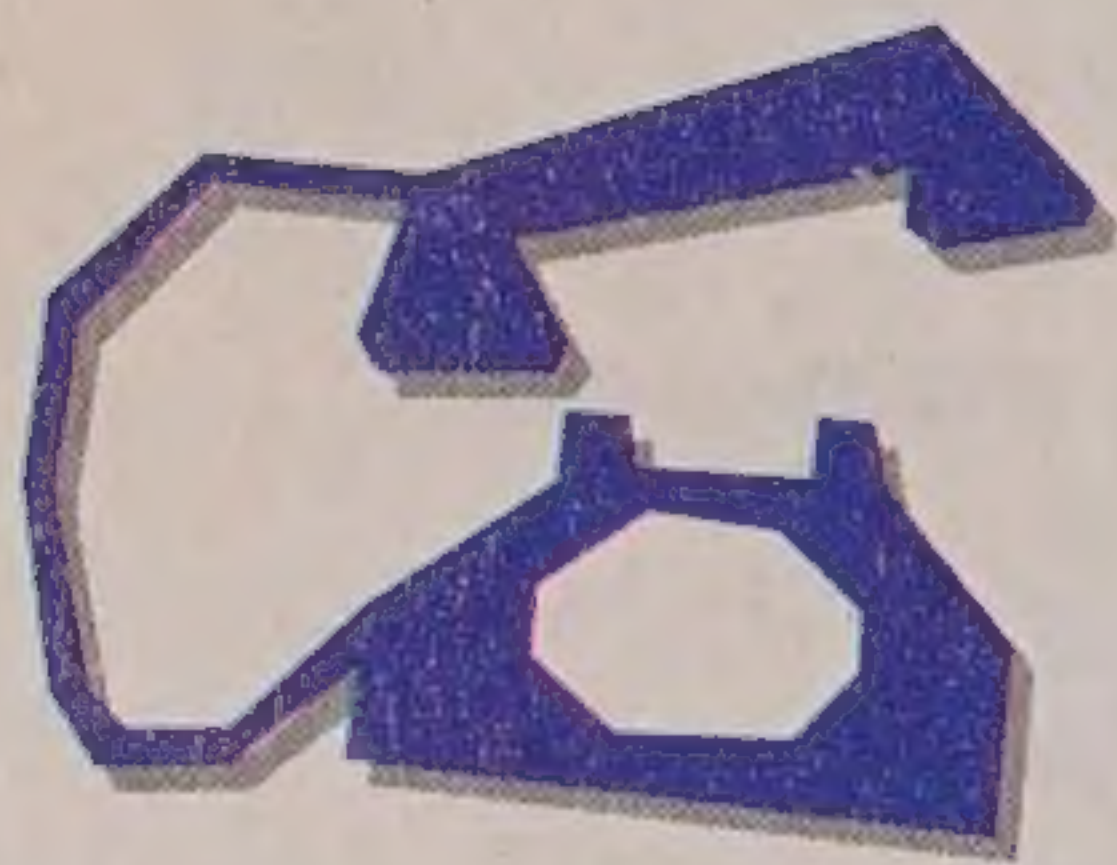


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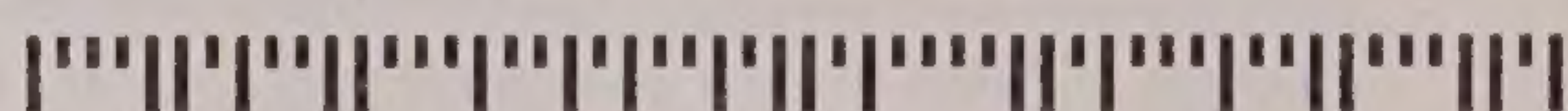
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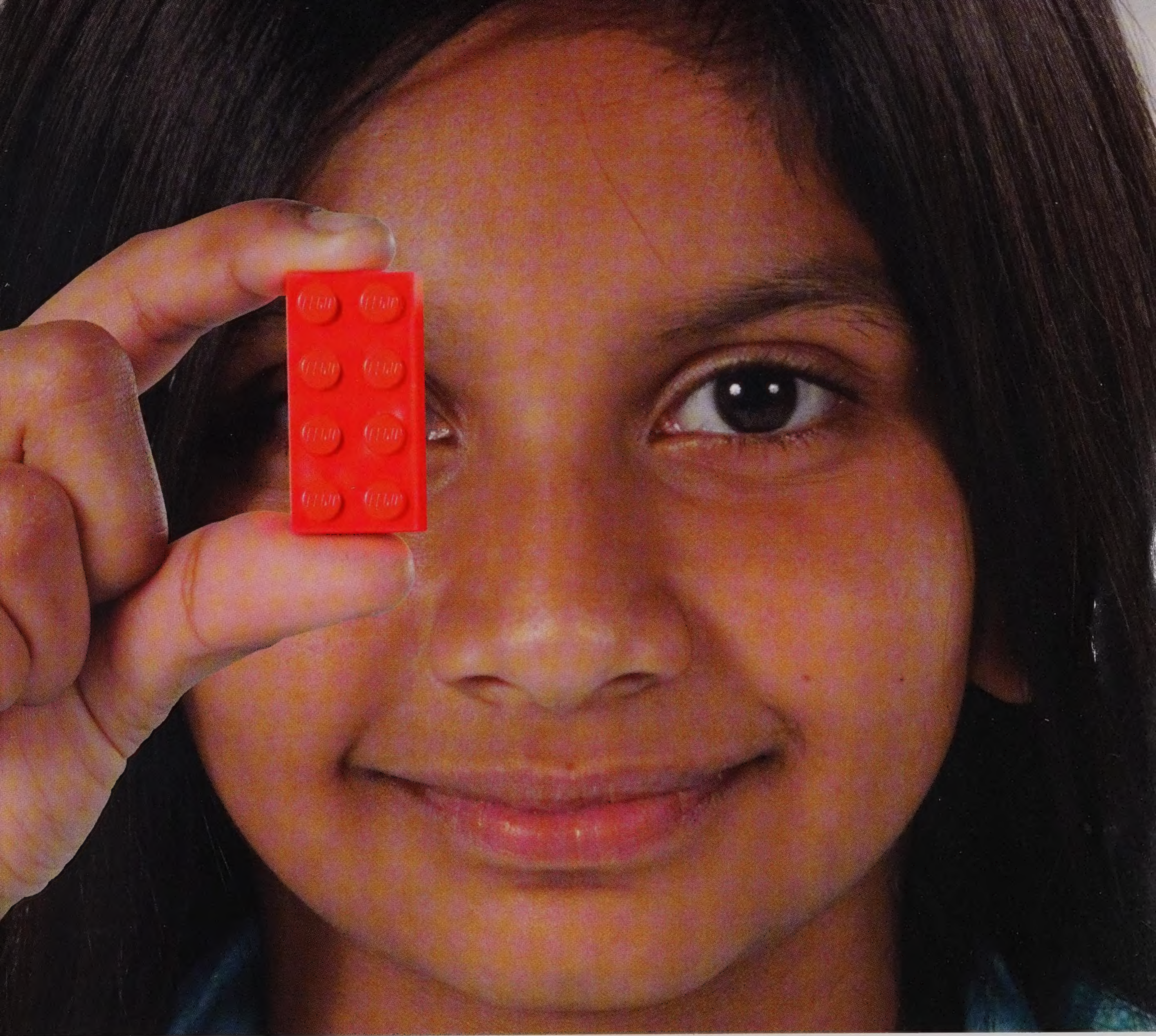
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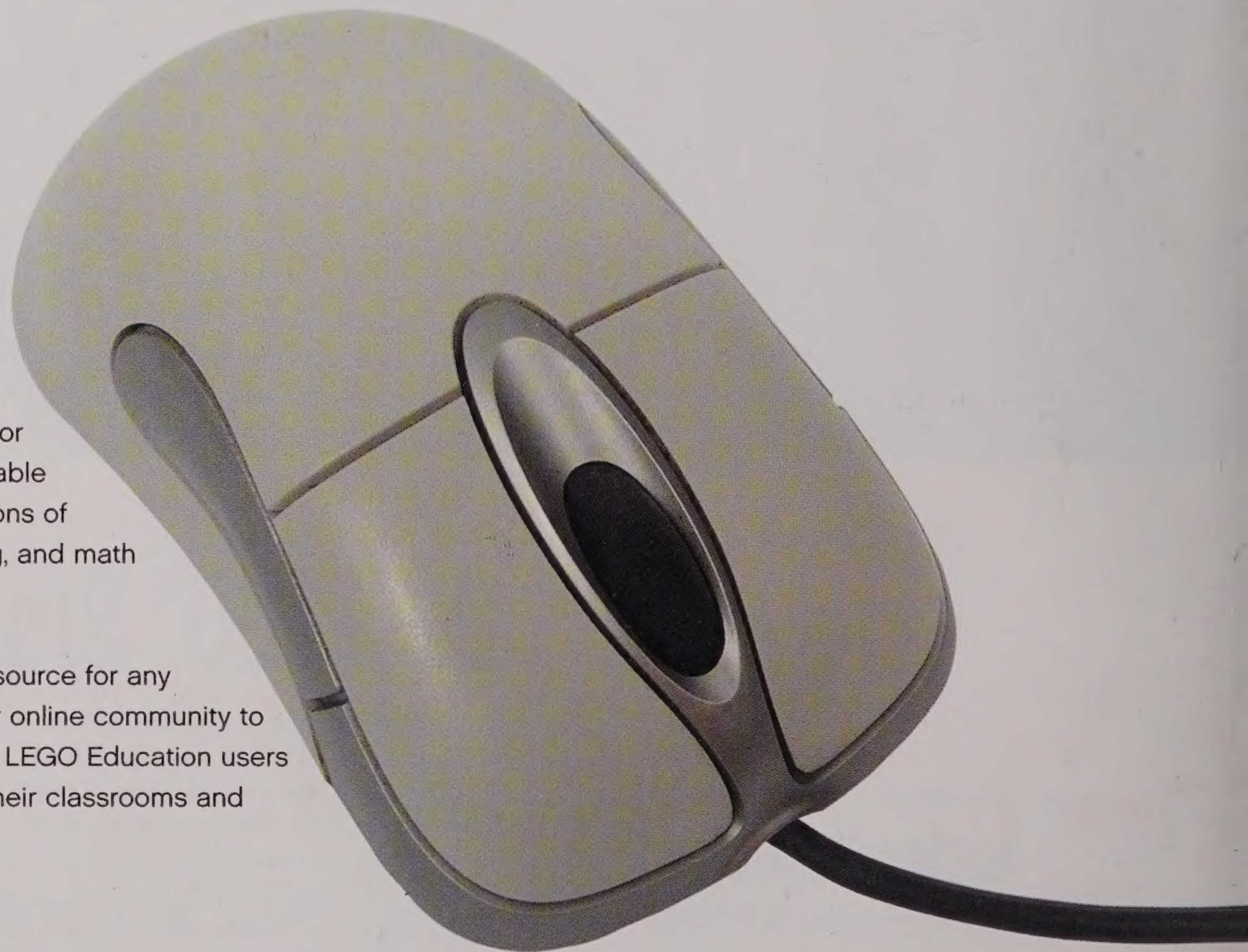
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